Basic Statistics and Mathematics

Commonly used statistical and mathematical terms
in Agriculture

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Foreword

Sri Lanka is a multinational and multilingual country. Sinhala and Tamil are the official languages, and English is the linking language. Personals proficient in these three languages are limited in number but have the advantage of being able to communicate with many people both inside and outside the country. The ability to work in other than the native language is considered an additional qualification in the job market in Sri Lanka. Due to the importance of multilingual competencies, the Sri Lankan government has modified school and university curricula and provided additional increments to government employees who are competent in working with more than one language in order to facilitate Sinhala, Tamil, and English learning. In this process trilingual subject glossaries are very important tool, thus need to be available for all most all subject areas.

Hence, the Department of Agricultural Systems of the Faculty of Agriculture, Rajarata University of Sri Lanka, started producing trilingual subject glossaries giving the meaning of keywords of the concerned subject in English, Sinhala, and Tamil. The subject glossaries are particularly useful for university students who have studied in their native language, employees communicating with multilingual communities, and planners/researchers preparing documents such as project proposals and research reports.

In 2022, the department planned to issue four subject glossaries, i.e., Statistics and Mathematics, Agricultural Marketing, Agricultural Extension, and Agricultural Systems. These glossaries were produced under the financial assistance of the Department Development Project of AHEAD grant funded by the World Bank. The glossary is available online in pdf and MS Word formats. Limited hard copies have been published and available in the university libraries.

This Statistics and Mathematics glossary describes 400 key terms in statistics and mathematics in English clearly and concisely, with examples whenever necessary. It also gives the term's meaning in both Sinhala and Tamil languages. The selected 400 words are widely used in analysing agricultural studies and research works; hence this glossary is useful for academics, planners, and policymakers.

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Instructions

Instructions for using the glossary

This glossary is presented in English alphabetical order. Each term is presented in the following order: English, Sinhala and Tamil. Note: Several definitions have been given some terms; some English definitions may not match Sinhala or Tamil ones. The term is defined in English, and an illustration (optional) for each entry.

Statistical and Mathematical Terms

1. **Absolute value** (modulus) / නිරපේක්ෂ අගය / தனிப் பெறுமானம் (மட்டுப் பெறுமானம்)
   The absolute value is the magnitude of a number, disregarding its sign. It is denoted by a pair of " | " signs. Simply it says the modulus of the value.
   - For example, the modulus of –2.5 is |-2.5| = 2.5.

2. **Acute angle**/ සුළුකෝණය / கூர்ங்கோணம்
   An angle whose measure is less than 90º. Acute angle lies in between $0° < \theta < 90°$.

Acute angles

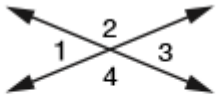
3. **Acute triangle** / සුළුකෝණික ත්‍රිකෝණය / கூர்ங்கோணமுக்கோணி
   A triangle in which each angle is less than 90°. When all the interior angles of a triangle are acute it is called as an acute triangle.

An acute triangle

4. **Addend** / ආකලනය, එකතු කළ සංඛ්‍යාව / கூட்டெண்
   Any of the numbers that are added together.
   Example: In the expression: 8 + 3 = 11, the 8 and the 3 are addends.

5. **Additive inverse** / ආකලන ප්‍රතිලෝමය / எதிர் சேர்க்கை (எதிர் எண்)
   The additive inverse is the number added to a given number to make the sum zero. For example, if we take the number 3 and add -3 to it, the result is zero. Hence, the additive inverse of 3 is -3.

6. **Adjacent angles** / බද්ධ කෝණය / அடுத்துள்ளகோணங்கள்
   Two angles in the same plane share a vertex and a ray. The following diagram illustrates an adjacent angle.



Angles 1 and 2, 2 and 3, 3 and 4, and 4 and 1
are pairs of adjacent angles.

7. **Adjusted means** / සකස්කළ මධ්‍යනයය / சரிசெய்யப் பட்டஇடை
   The mean value calculated after removing certain data points that could lead to misinterpretation. For example, in the data set: 2, 3, 3, 4, 3, 4, 5, 2, 130. The last value is unusual and will change the mean significantly. Mathematically it is correct, but in real life it may be due to an error or occurrence of one-time value. Therefore, in the adjusted means, remove this unusual observation and calculate the mean.

8. **Adjusted R^2 /** සැකසූ නිර්ණන සංගුණකය / சரிசெய்யப்பட்ட R^2
   A modified version of R-squared that accounts for predictors that are not significant in a regression model. The adjusted R-squared shows whether adding additional predictors really improves a percentage of variation explained by a regression model.

9. **Algebra** / වීජ ගණිතය / அட்சரகணிதம்
   The branch of mathematics that uses letters, symbols, and/or characters to represent numbers to express mathematical relationship.

10. **Algebraic expression** / වීජීය ප්‍රකාශනය / அட்சரகணிதக்கோவை
    A mathematical phrase that contain one or more variables and constants, but does not include a relation symbol such as <, >, =, ≠.
    e.g. 3y + 6, $2x^2 - 3x + 5$

11. **Algebraic fraction** / වීජීය භාගය / அட்சரகணிதப்பின்னம்

A fraction in which both the numerator and the denominator are algebraic expressions. The following two expressions are examples of algebraic fractions.

$$\frac{2x+3}{4x-2}, \quad \frac{\sqrt{a+2x}}{3a}$$

12. **Algebraic term** / වීජීය පද / அட்சரகணித உறுப்பு

Terms or components in an expression which is made up of variables and constants. A simple algebraic expression that is often combined with other terms using operations, to form a more complicated algebraic expression. For example, $5x$ and $(3x + 2)$ are terms in the quadratic expression $5x(3x + 2)$, while x^2 and $\frac{5}{x}$ are terms in the expression $x^2 + \frac{5}{x}$.

13. **Algorithm** / ඇල්ගොරිතම / கணிமுறை

An explicit step-by-step procedure for performing a mathematical computation or for solving a mathematical problem. As an example for adding the numbers 150 and 457 following algorithm is used,

Step 1 : split the numbers.

150 = 100 + 50,

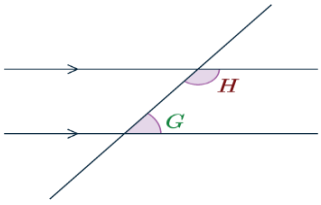
457 = 400 + 50 + 7

Step 2 : add hundreds, tens and ones separately, then get their sum

100+400 + 50+50 + 7 = 500 + 100 + 7 = 607

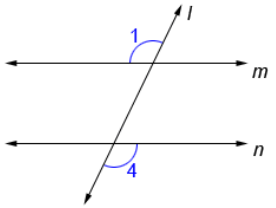
14. **Allied angle** / මිත්‍ර කෝණ / நேயக்கோணங்கள்

The interior opposite angles on the same side of the transversal. Following diagram gives an example of allied angle.

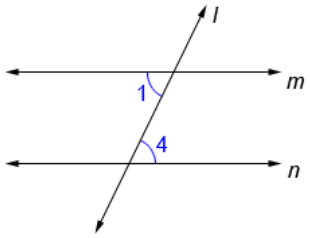


15. **Alpha-level** / පරීක්ෂණයේ ඇල්ෆා මට්ටම / சோதனையொன்றின் அல்பா மட்டம்
The probability of rejecting true null hypothesis in statistical hypothesis testing.

16. **Alternate external (Exterior) Angles** / විකල්ප බාහිර කෝණ / மாற்று புறக்கோணங்கள்
Two nonadjacent angles on opposite sides of a transversal and on the exterior (external) of a pair of parallel lines intersected by the transversal. In the following diagram, angle 1 and angle 4 are alternate exterior angles.



17. **Alternate Interior Angles** / ඒකාන්තර කෝණ / மாற்று அ க்கோணங்கள் (ஒன்றுவிட்ட கோணங்கள்)
Two nonadjacent angles on the opposite side of a transversal and between a pair of parallel lines intersected by the transversal. In the following diagram, angle 1 and angle 4 are alternate interior angles.



18. **Alternative hypothesis** / විකල්පිත කල්පිතය / மாற்றுக்கருதுகோள்
A statement that sets up an alternative to the null hypothesis and usually includes what needs to be tested. As an example, in a study to test the mean yield of a crop variety is greater than 20 kg, the null and alternative hypotheses will be,

H_0: $\mu \leq 20$ (The mean yield is equal or less than 20)

H_1: $\mu > 20$ (The mean yield is greater than 20)

19. **Analysis of Covariance (ANCOVA)** /සහ සංයුජ විශ්ලේෂණය / இணைமாறற்றிறன் பகுப்பாய்வு

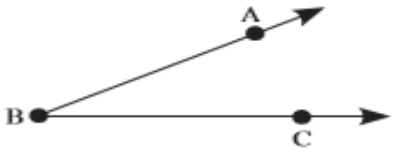
A technique that merges analysis of variance (ANOVA) and linear regression. The ANCOVA is used to analyze data with one continuous response (dependent) variable and two or more predictor variables (called covariates) in which at least one of them is a continuous (quantitative) variable and at least one of the other variable/s is a categorical (nominal) scale variable.

20. **Analysis of Variance (ANOVA)** / විචලනතා විශ්ලේෂණය / மாறற்றிறன் பகுப்பாய்வு

A statistical technique that is used to test the means of more than two groups are significantly different. ANOVA checks the impact of one or more factors by comparing the between group variance with within group variance.

21. **Angle**/ කෝණය / கோணம்

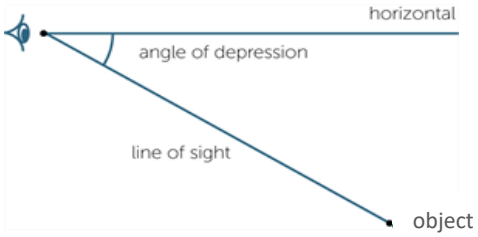
A geometric figure formed by two rays or line segments (also called arms) with a common endpoint (called a vertex). The measure of an angle is a number representing the spread of the two rays of the angle. The following diagram gives an example of an angle.



$\angle ABC$ has its vertex at point B.
$\overrightarrow{BA}$ and $\overrightarrow{BC}$ are rays.

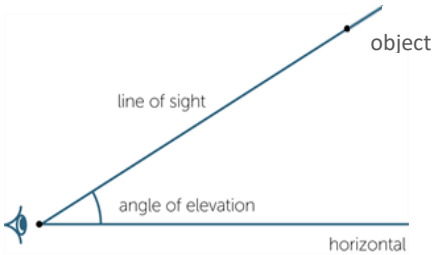
22. **Angle of depression /** අවරෝහණ (අවරෝහණකෝණය) **/** இறக்கக் கோணம்

The angle make between the line of sight and the horizontal axis which is lower than the horizontal axis. Following figure illustrates it graphically.



23. **Angle of elevation** / ආරෝහණ (උන්නතාංශයේකෝණය) / ஏற்ற கோணம்

The angle make between the line of sight and the horizontal axis which is above the horizontal axis. Following figure illustrates it graphically.



24. **Approximate / approximation /** දළ වශයෙන්/ அண்ணளவான/ அண்ணளவாக்கம்

The process of expressing a measurement or result of a calculation with a higher number of digits using less number of digits by rounding. For example, 2.91m can be approximately expressed as 3.

25. **Association /** සංසටනය / தொடர்பு(சேர்க்கை)

A measure of the relationship between two variables in which the distribution of the first variable changes with the values of the second variable.

26. **Associative** / සංසටන / கூடிச்சேரும் இயல்புடைய

An operation is associative if the result of applying the operation to any expression is the same regardless of which pair of elements (without changing their order) are combined first. Addition and multiplication are associative on the set of natural numbers, for example:

$4 + (7 + 5) = 4 + 12 = 16$ and $(4 + 7) + 5 = 11 + 5 = 16$

$2 \times (3 \times 4) = 2 \times 12 = 24$ and $(2 \times 3) \times 4 = 6 \times 4 = 24$

Subtraction and division are not associative on the set of natural numbers, for example:

$10 - (4 - 2) = 10 - 2 = 8$ but $(10 - 4) - 2 = 6 - 2 = 4$

$24 \div (12 \div 2) = 24 \div 6 = 4$ but $(24 \div 12) \div 2 = 2 \div 2 = 1$

27. **Associative Law**/ සංසටන නියාය / துணை விதிகள்

The law giving the associative property for addition and multiplication of all real numbers a, b and c and given by following expressions.

$a + (b + c) = (a + b) + c$ and $a \times (b \times c) = (a \times b) \times c$

28. **Assumptions** /උපකල්පන / எடுகோள்கள்

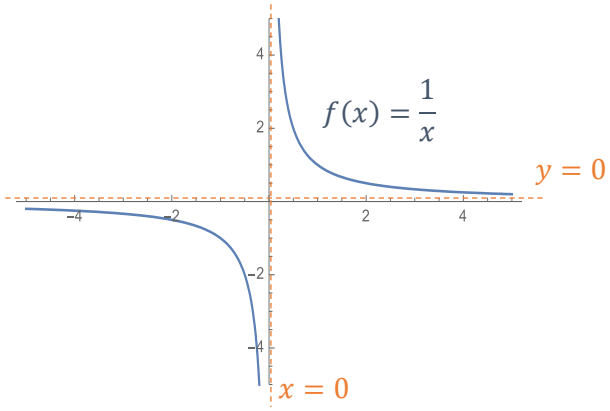
Conditions need to be satisfied for the results of statistical analysis to be valid. When making inferences, the sample statistics are used to estimate the parameters. The validity of the estimates holds if the analysis assumptions are met.

For example, there are four main assumptions associated with a linear regression model:

1. **Linearity**: The relationship between X and the mean of Y is linear.
2. **Homoscedasticity**: The variance of residual is the same for all values of X.
3. **Independence**: Observations are independent of each other.
4. **Normality**: For any fixed value of X, Y is normally distributed.

29. **Asymptote** / අසම්මිතික /அணுகுகோடு

An asymptote is a line or curve that closely approaches a given axis but does not reach it. For example, the graph below shows two asymptotes at $x = 0$ and $y = 0$ for the function $(x) = \frac{1}{x}$. Following diagram gives two curves with asymptotes.

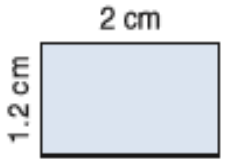


30. **Autoregressive model** / ස්වයංප්‍රතිගාමී ආකෘතිය / தன்னியக்கமாதிரியுருக்கள்
Model used to predict the future behavior based on past behavior in time series data modeling.

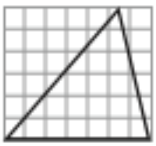
31. **Average** / සාමාන්‍යය / சராசரி (இடை)
Average is the number obtained by dividing the sum of a set of numbers by the number of elements. For example, the average of {5, 10, 3, 2, 5} is 5 as given below.

$$\text{Average} = \frac{5 + 10 + 3 + 2 + 5}{5} = 5$$

32. **Area /** වර්ගඵලය / பரப்பளவு
A two-dimensional quantity representing the amount of space on a surface.



A rectangle with area
1.2 cm * 2 cm = 2.4 cm²


A triangle with area
21 square units

33. **Array** / පෙළගැස්වීම **/** வரிசை
A set of numbers or objects arranged in n dimension. An array in two dimension is called a matrix. Following figure shows a two dimensional array (3 x 4 matrix).

12	23	4	-9
-7	13	6	0
9	-3	4	11

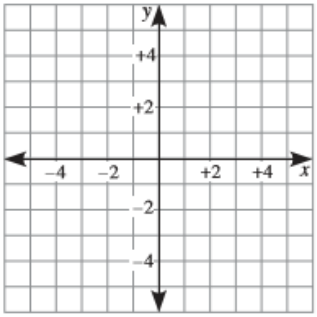
3 rows x 4 columns

34. **Ascending order** / ආරෝහණ පටිපාටිය / ஏறுவரிசை
Arranging objects or numbers in order staring from the least magnitude up to highest magnitude. For example 1, 2, 3, 4, 5, 6, 7, 8…

35. **Axis** / අක්ෂය / அச்சு

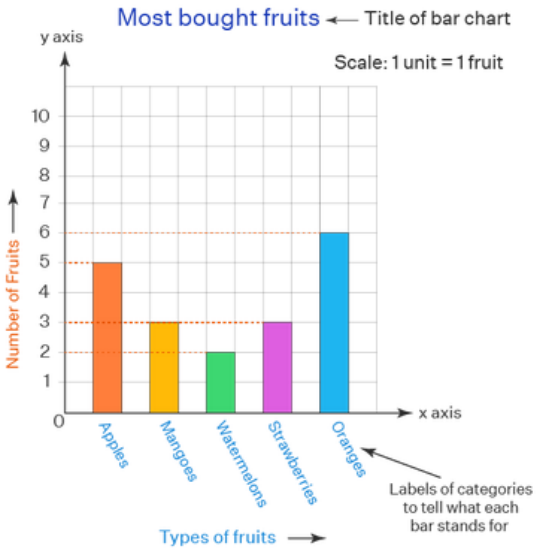
A horizontal line or a vertical line usually used in the Cartesian coordinate system to locate a point on the Cartesian (coordinate) plane.

e.g: The figure below illustrates the horizontal axis (x) and the vertical axis (y).



36. **Bar graph/ chart** / ස්තම්භ ප්‍රස්ථාර / சலாகை (நிரல்) வரைபு

A form of graphical representation displays data classified into several (usually unordered) categories where rectangular bars are constructed over each category with a height equal to the observed frequency of the category. The following figure illustrates a bar graph/ chart.



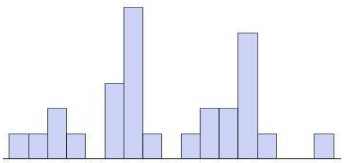
37. **Base number** / පාදය (පාදයේ වටිනාකම) / அடி எண்
A real number $\boldsymbol{b}$ in the expression, $\boldsymbol{b^n}$ is called the base number where it multiplies *n* times to get the value
e.g: In the expression, 3^4, 3 is the base number that is multiplied four times ($3 \times 3 \times 3 \times 3$) to get the value 81.

38. **Bernoulli trial** / බර්නූලි නැහැසුම / பேணுலியின் முயல்வுகள்
A trial with two possible outcomes. Two outcomes are called as success and failure. The probability of success is given by $\boldsymbol{p}$ and the probability of failure is given by $\boldsymbol{1 - p}$ (sometimes also referred to as $\boldsymbol{q}$). For example, tossing a coin is a Bernoulli trial which gives only two outcome (Head or Tail).

39. **Beta coefficient** / බීටා සංගුණකය / பீற்றாக்குணகம்
An estimated regression coefficient that has been recalculated (standardized) to have mean = 0 and standard deviation = 1. It allows direct comparison of relative explanatory power of explanatory variables on the response variable.

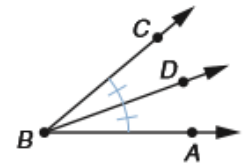
40. **Biased estimator** / අභිනත නිමානය (ඇස්තමේන්තු) / கோடிய மதிப்பான் (நடுநிலையற்ற மதிப்பான்)
An estimator which gives estimates that deviates from the population parameter.

41. **Bimodal data/** ද්විමාත දත්ත / ஈராகாரத்தரவு
A data set is said to have a bimodal distribution when it has two modes. The term bimodal is also used if the graph of the distribution has two distinct peaks, as shown in the histogram below:



42. **Biostatistics** / ජීව සංඛ්‍යාති / உயிரியல் புள்ளிவிபரவியல்
The branch of science which applies statistical methods in biology.

43. **Bisector** / සමච්ඡේදකය / இருகூறாக்கி
A line that splits an angle into two equal angles.



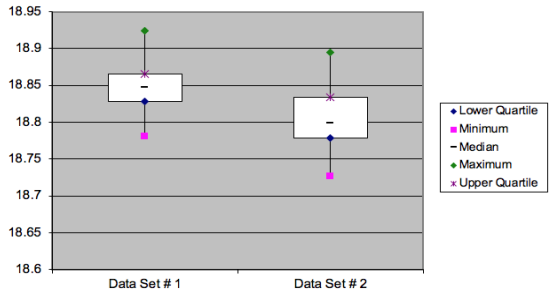
Ray *BD* bisects angle *ABC*.

44. **Bivariate statistics** / ද්විමාන සංඛ්‍යානය / இருமாறிபுள்ளிவிபரங்கள்
Statistical procedures used for testing and assessing the association between two variables.

45. **Block** / කාණ්ඩය; කට්ටිය / கண்டம்
The group of plots, or experimental units which are homogeneous. Treatments are assigned randomly to the plots within the given blocks. The objective is to remove block-to-block variation from experimental error.

46. **Blocking** / කාණ්ඩ කිරීම / கண்டப்படுத்தல்
Allocating similar plots or experimental units to same group and making several such homogeneous groups (Blocks) of plots.

47. **Box-and-Whiskers Plot** / කොටු හා කෙඳි පිහිටුවීම / பெட்டி வீசை வரைபு
A graphical method of displaying the key characteristics of a set of observations. The display is based on the five-number summary of the data. The box shows the inter-quartile range, and the whiskers extend towards minimum and maximum to include all but outside observations, which are indicated separately using asterisks.



48. **Capacity** / ධාරිතාව / கொள்ளளவு

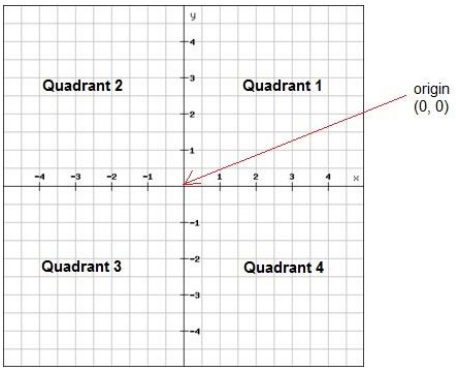
The amount of liquid that a container can hold. It is expressed in units such as liters [L] and milliliters [mL]).

49. **Cartesian coordinate system** / කාටිසිය ඛණ්ඩාංක පද්ධතිය / ார்ட்டீசியன் ஆள்கூற்றுமுறைமை (தெக்காட்டின் ஆள்கூற்று முறைமை)

A system in which the location of a point is given by the coordinates that represents the distance from perpendicular lines that intersects at a point called as origin. The position of any point in the Cartesian plane can be represented by an ordered pair of numbers (x, y). These ordered pairs are called the coordinates of the point. The coordinates of the origin are (0, 0).

50. **Cartesian plane** / කාටිසිය තලය / கார்ட்டீசியன் தளம் (தெக்காட்டின் தளம்)

Two intersecting number lines intersecting at right angles at their origins to form the axes of the coordinate system. The plane is then divided into four quadrants by these perpendicular axes called the x-axis (horizontal line) and the y-axis (vertical line) as follows. This plane is called the Cartesian plane.



51. **Cases** / සිද්ධි / விடயம்

The sampling units in which measurements are taken in a study. In logistic regression, however, the term also refers to the units of analysis that have experienced the event of interest. As an example, students are the cases in the following data table.

Variables

Student	Hours Studied	Exam Score
1	2	76
2	4	93
3	3	90
4	4	91
5	4	87
6	5	97
7	6	94
8	5	92
9	4	81
10	4	80

Cases

52. **Categorical variable** / වර්ගීකරණ විචල්‍ය / வகைப்படுத்தப்பட்ட மாறி
A variable with values that range over categories rather than being numerical. Examples gender (male, female), paint color (red, white, blue), type of animal (elephant, leopard, lion) are categorical variables. These variables are two types nominal and ordinal.

53. **Causality** / හේතුඵලය / காரணகாரியம்
Things that cause other things to happen in relation to *cause and effect*. For example,

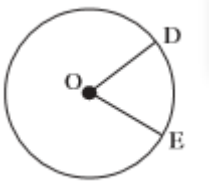
Causes of Agricultural Pollution

- ✓ Over use of Pesticides and Fertilizers
- ✓ Soil Erosion and Sedimentation
- ✓ Use of Heavy Metals

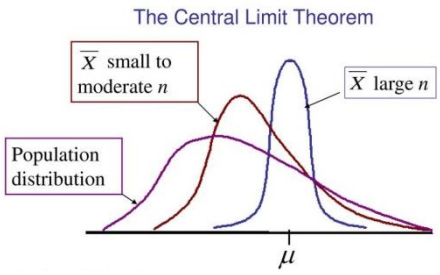
Effects of Agricultural Pollution

- ✓ Health-related issues
- ✓ Eutrophication
- ✓ Biodiversity loss

54. **Central angle** / කේන්ද්‍රික කෝණ / மைய கோணம்
An angle where the vertex of which is at the center of a circle and the rays of which pass through points on the circumference of the circle. For example: DOE in the following diagram is a central angle of circle O.



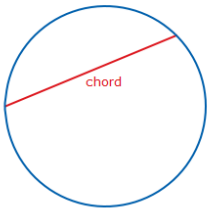
55. **Central limit theorem** / මධ්‍යසීමා ප්‍රමේය / மைய எல்லைத் தேற்றம்If a random variable X has population mean μ and population variance σ^2, then the sample mean, $\bar{x}$, based on *n* observations, has an approximate normal distribution with mean μ and variance σ^2/n, for sufficiently large *n*. Following diagram illustrate the distributions of the random variable in the population and distributions of the sample mean for different sample sizes.



56. **Center of a distribution /** ව්‍යාප්ති කේන්ද්‍රය / பரம்பலின் மையம்
The typical or average value of the distribution of a random variable.

57. **Chance (likelihood)** / අවස්ථාව / සම්භාවිතාව / நேர்தகவு (இயல்தகவு)
The relative frequency of occurring an event. The chance/likelihood may be expressed qualitatively using terms such as: impossible, no chance, not likely, an even chance, odds-on, likely and certain. The chance may also be expressed quantitatively using a number on a scale from 0 (impossible) to 1 (certain).

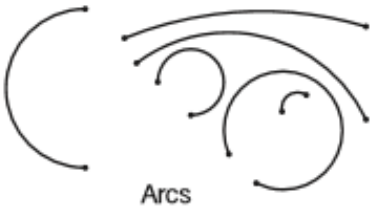
58. **Chord** / ජ්‍යාය / நாண்
A line segment whose endpoints lie on the circumference of a circle as given in the following diagram.



59. **Chi-squared ($\chi 2$) test /** කයි වර්ග පරීක්ෂාව / கை வர்க்கச் சோதனை
A statistical test of hypothesis that is used to examine the differences between categorical variables from a random sample in order to judge the goodness of fit or testing the association between two qualitative variables. The $\chi 2$ test statistic is calculated as $\sum\frac{(O-E)^2}{E}$where E is the expected frequencies and O is the observed frequencies. Here the test statistic is assumed to follow a Chi-squared distribution with degrees of freedom given by v.

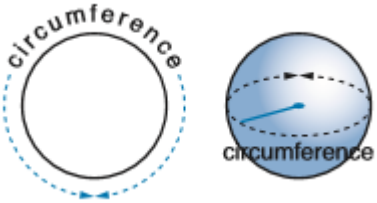
60. **Circular arc**/ චාපය / வட்டவில்

A segment (part) of the circumference of a circle. The following diagram illustrates few arcs.



61. **Circumference** / පරිධිය / பரிதி

The perimeter of a circular area.



62. **Clockwise** / දක්ෂිණාවර්ත/ வலஞ்சுழி

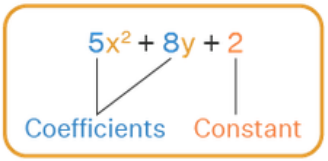
The direction of rotating the hands of an analog clock.

63. **Cluster sampling /** පොකුරු නියැදීම / கொத்து மாதிரியெடுப்பு

The sampling technique in which existing groups in the population identified as clusters and include all cases in some of those groups as the sample.

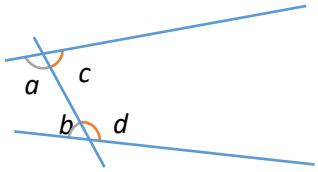
64. **Coefficient** / සංගුණකය / குணகம்

The number or symbol (2, *e*) multiplied by a variable (x) in an algebraic term (2x).



65. **Coefficient of variation** / විචලතා සංගුණකය / மாறற்றிறன்குணகம்
The coefficient of variation (CV) is a statistical measure of the dispersion of data points in a data series around the mean. The coefficient of variation represents the ratio of the standard deviation to the mean, and it is a useful statistic for comparing the degree of variation in different data series, when mean values are highly different.

66. **Co-interior (allied) angle** / සහ-අභ්‍යන්තර කෝණය / நேயக்கோணங்கள்
The angles that are formed by intersecting a pair of lines (which may or may not be parallel) which is between the two lines, and on the same side of the transversal.



67. **Common denominator** / පොදු හරය / பொதுப் பகுதிஎண்
A natural number that is a common multiple of all denominator in two or more fractions. For example, common denominators for ½ and 2/5 are 10, 20, 30, . . .etc.

68. **Common factor** / පොදු සාධකය / பொதுக் காரணி
A number that is a factor in two or more numbers. For example, 2 is a factor in 4, 8, and 12, thus 2 is a common factor.

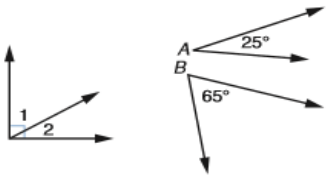
69. **Common multiple** / පොදු ගුණාකාරය/ பொது மடங்கு
A whole number that is a multiple of two or more given numbers. For example, common multiples of 2, 3, and 4 are 12, 24, 36, 48, . . .etc.

70. **Commutative** / **න්‍යාදේශ** / பரிவர்த்தனை
An operation is commutative if the result of applying the operation to any two elements of a set is the same, regardless of the order of the elements. The mathematical operations, addition and multiplication are commutative on the set of natural numbers. For example;
$6 + 12 = 12 + 6 = 18$ and $6 \times 12 = 12 \times 6 = 72$
However, the operations, subtraction and division are not commutative as given in the following example.
$6 - 12 = -6$ but $12 - 6 = 6$ and $6 \div 12 = \frac{1}{2}$ but $12 \div 6 = 2$.

71. **Commutative Law /** න්‍යාදේශ න්‍යාය / பரிவர்த்தனை விதிகள்
The commutative law (properties) for addition and multiplication of real numbers state that for all real numbers a and b, $a + b = b + a$ and $ab = ba$, respectively.

72. **Complement of a set** / කුලකයක අනුපූරකය / தொடையொன்றின் நிரப்பி
A set of elements not in the given set but in the universal set.

73. **Complementary angles** / අනුපූරක කෝණය/ நிரப்பு கோணங்கள்
Two angles whose sum is 90 degrees.



∠1 and ∠2; ∠A and ∠B
are pairs of complementary angles.

74. **Complementary events** / අනුපූරක අවස්ථා / நிரப்பு நிகழ்ச்சிகள்
Events A and B are complementary events, if A and B are mutually exclusive and $Pr(A) + Pr(B) = 1$ where $Pr(A)$ is the probability of event A and $Pr(B)$ the probability of event B. For example, if the event A is receiving no 3 on a die and the event B is receiving an any other number except the number 3. The A and B are complementary events. Thus the sum of the probability of events A and B are,

$$Pr(A) + Pr(B) = \frac{1}{6} + \frac{5}{6} = 1.$$

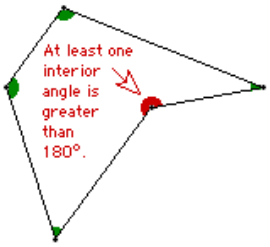
75. **Complementary numbers** / අනුපූරක සංඛ්‍යා / நிரப்பு எண்கள்
Two numbers that add up to a given number. For example, the complementary numbers of 10 are 1 and 9, 2 and 8, 3 and 7, 4 and 6, and 5 and 5. The complementary numbers for 5 are 1 and 4, and 2 and 3.

76. **Composite number** / සංයුක්ත සංඛ්‍යා / சேர்த்தி எண்
A non-zero natural number that has a factor other than 1 and itself is called as a composite number. For example, 8 is a composite number since it has four distinct elements in its factor set: {1, 2, 4, 8}. The number 2 is not a composite number since it has only two distinct elements in its factor

set: {1, 2}. With the exception of 1, which has only one distinct element in its factor set: {1}, all non-zero natural numbers are either composite or prime.

77. **Computation** / ගණනය කිරීම / கணிப்பு
Computation is the action of a mathematical calculation. The computation may also be used in the context of computer science.

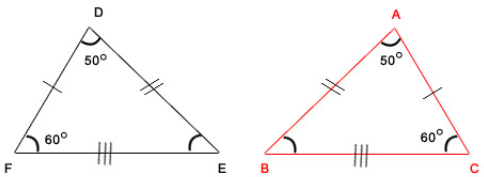
78. **Concave polygons** / අවතල බහුඅස්‍ර / குழிவுப் பல்கோணிகள்
A type of polygon which has any interior angles greater than 180°.



79. **Concentric circles** / ඒකකේන්ද්‍රීය වෘත්ත / செறிவு வட்டங்கள்
Circles that have the same center but different radius.

80. **Confidence interval** / විශ්වාස ප්‍රාන්තරය / நம்பிக்கை ஆயிடை
A range of values calculated from a sample (selected set of observations) which includes true parameter value with a known probability. For example, the 95% confidence interval is a mean that is 95% sure that the population parameter will be included in the calculated interval. Usually, confidence intervals are calculated with 90%, 95% or 99% confidence levels.

81. **Congruent figures** / අංගසම රූප/ஒருங்கிசைந்த உருக்கள்
Figures that have the same size and shape. Example following triangles are congruent figures.



82. **Constant** / නියතය / ஒருமை உறுப்பு(மாறிலி)

A constant is a number that has a fixed value in a given context. For example, in the expression of $n + 11$, n is the variable and the number 11 is a constant. In formulas such as $P = 4 \times I$, 4 is a constant while P and I are variables. Sometimes the constant may be undetermined in which it does not have a known value. For example, the general linear equation $y = mx + c$ has two such constants: m and c.

83. **Constraint** / අවහිරතා(සංරෝධය) / வரையறை

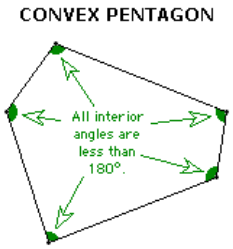
A reduction of the degrees of freedom of the elements of a system is exerted by some collection of elements. There is a limitation or bias in such elements' variability or possibility of change.

84. **Continuous variable** / සන්තතික විචල්‍යය / தொடர் மாறி

A numeric variable is continuous if the observations take any value within an interval of the number line. Variables in which readings are taken from measuring such as height, weight, and temperature are continuous variables.

85. **Convex polygons** / උත්තල බහුඅස්‍රය / குவிவு பல்கோணிகள்

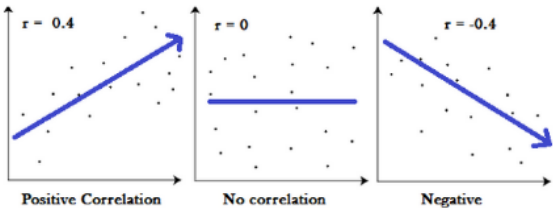
Type of polygons in which all interior angles are less than 180°.



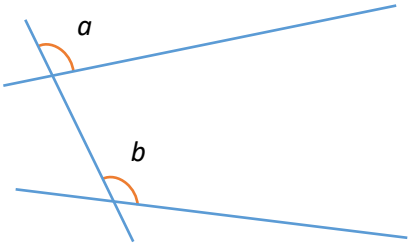
86. **Coordinate** / ඛණ්ඩාංක / ஆள்கூறு

An ordered set of numbers that define the position of a point. For example, the ordered pair (a, b) in the Cartesian plane located at the point where $x = a$ and $y = b$ is called the coordinates of the point. The x coordinate is the first number in this ordered pair (a), and the y coordinate is the second number (b).

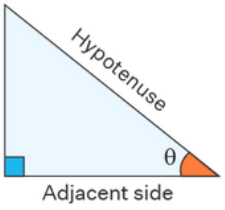
87. **Correlation coefficient** / සහසම්බන්ධතා සංගුණකය / தொடர்புக் குணகம்
An index that quantifies the linear relationship between a pair of variables. It can have a value between –1 and +1, indicating the degree to which two variables are linearly related. The following diagram shows the strengths of relationships at several correlation coefficient values.



88. **Corresponding angles** / අනුරූප කෝණ / ஒத்தகோணங்கள்
The angles that are formed by intersecting a pair of lines (which may or may not be parallel) and on the same side of the traversal. That is both angles are located above or below the lines.

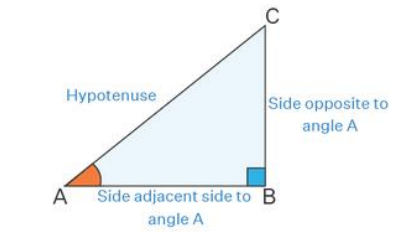


89. **Cosine** / කොසයිනය / கோசைன்
The ratio of the length of the side-lying adjacent to an acute angle to the length of the hypotenuse in a right triangle. This is abbreviated as cos.



$$\cos\theta = \frac{\text{Adjacent side}}{\text{Hypotenuse}}$$

90. **Cotangent** / කොටැංජනය / கோதான்சன்
The ratio of the length of the side-lying adjacent to an acute angle to the length of side opposite of that acute angle in a right triangle. This is abbreviated as cot.



$$\cot A = \frac{\text{Adjacent side of A}}{\text{Opposite side of A}} = \frac{AB}{BC}$$

91. **Counter-clockwise** (Anti-clockwise) / වාමාවර්ත / இடஞ்சுழி (எதிர்-கடிகார திசை)
the opposite direction of rotating the hands of an analog clock.

92. **Counting numbers** / ගණිත සංඛ්‍යා / எண்ணும் எண்கள்
The numbers that are used for counting things. The set of counting numbers is {1, 2, 3, 4, . . .}. Sometimes 0 is included, but not in general condition. Counting numbers are also included in the sets of whole numbers, natural numbers, integers, rational numbers, and real numbers, with other additional numbers not included in the set of counting numbers.

93. **Covariance** / සහවිචල්‍යතාව / இணைமாறற்றிறன்
Covariance is a measure of the relationship between two random variables. This metric quantify how much of variations of the variables change together. It calculated by taking the expected value of the product of the deviations of two random variables, x and y, from their respective means, μ_x and μ_y.

94. **Cross multiplication** / හරස් ගුණිතය / குறுக்கு பெருக்கல்
The process of rewriting a proportion by multiplying the cross-products of two proportions. Cross multiplication can be used in solving open proportions.

$$3 * 20 = 60 \qquad 4 * z = 4z$$

$$\frac{3}{4} = \frac{z}{20}$$

To solve:

$$\frac{3}{4} = \frac{z}{20}$$
$$3 * 20 = 4 * z$$
$$60 = 4z$$
$$60/4 = 4z/4$$
$$15 = z$$

95. **Cumulative frequency** / සමුච්චිත සංඛ්‍යාතය / திரள் மீடிறன்

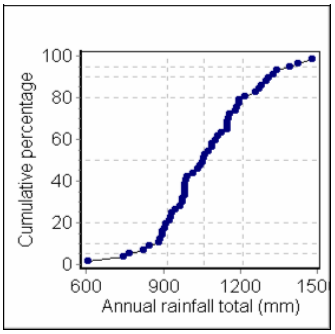
Cumulative frequency is the sum of all frequencies of observations that lie above (or below) a particular value in a data set. The cumulative frequency is calculated using a frequency distribution table, which can be constructed from stem and leaf plots or directly from the data.

For example the cumulative frequency (less than) of daily harvest recorded for 30-day period is given below.

Stem	Leaf	Frequency (f)	Cumulative frequency
0	4	1	1
1	8 9	2	1 + 2 = 3
2	3 4 6	3	3 + 3 = 6
3	1 5 5 7 9	5	6 + 5 = 11
4	0 1 2 3 5 9	6	11 + 6 = 17
5	0 1 1 2 4 4 5 6 7	9	17 + 9 = 26
6	0 2 3 5	4	26 + 4 = 30

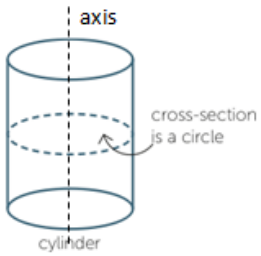
96. **Cumulative frequency curve** / සමුච්චිත සංඛ්‍යාත වක්‍රය / திரள் மீடிறன் வளையி

The graph of cumulative frequency is called as cumulative frequency curve. The y-axis of this graph can show the frequency, the proportion of the percentage and x axis gives the number



97. **Cylinder** / සිලින්ඩරය / உருளை

A *cylinder* is a three-dimensional object with parallel circular discs of equal radius at the ends. Each cross-section parallel to the ends is a circle with the same radius, and the centers of these circular cross-sections lie on a straight line called the cylinder's axis.



A cylinder may be said to be open or closed depending on whether the circular ends are included. For example, an open tube may be called a cylinder, or a solid rod may be called a closed cylinder.

98. **Data** / දත්ත / தரவு

Numbers, letters, or special characters representing measurements of the analytic units, or cases, in a study. Data are the raw material of statistics.

99. **Decimal** / දශම සංඛ්‍යා / தசமம்

A fractional number that is written in base ten. Decimals are included in mixed decimal numbers as well. For example, 0.32 is a decimal, and 3.5 is a mixed decimal.

100. **Decimal point**/ දශමස්ථානය / தசமப் புள்ளி

The mark used to separate the ones and tenths places in decimal numbers. The period is used as the decimal point.

101. **Degree** / අංශකය / பாகை

Angles are measured as a proportion of a full turn which is equivalent to 360 degrees, so that one degree is equal to $\frac{1}{360}$ of a full-turn. The measure of an angle α in degrees is written as α°.

102. **Degrees of freedom** / ස්වතන්ත්‍රතා ප්‍රමාණ; සුවලන අංක / சுயாதீனப் படிகள்

A technical term reflecting the number of independent elements comprising a statistical measure. Certain distributions require a degree of freedom, value to fully characterize them (e.g., the t, $\chi 2$, and F distributions).

103. **Denominator /** හරය / பகுதிஎண்

The number below or after the fraction bar in a fraction representing the number of equal parts into which a whole is divided. For example, the denominator of 5 means one is divided into fifths. In the following quotient, the denominator is 5.

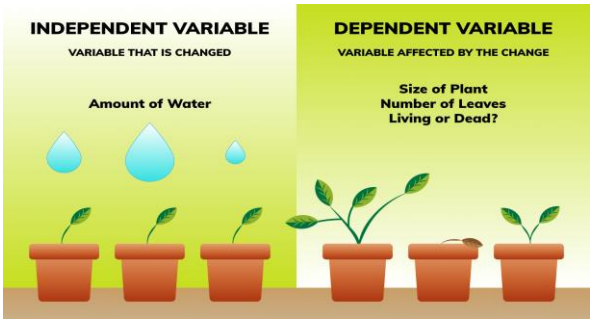
$$\frac{3}{5}$$ ← numerator ← denominator

104. **Density** / ඝනත්වය / அடர்த்தி

If a random variable x has a probability distribution of p(x), then the relationship between the outcomes of a random variable and its probability is referred to as the “density” or probability density.

105. **Dependent variable** / පරායත්ත විචල්‍ය / சார்பு மாறி (சார் மாறி)

The variable that is believed whose value is changed depending on values of other variable/s. It is the primary variable in investigations since the primary objective is to study treatment and/or other explanatory variables' effects on this variable and provide appropriate models for its relationship. Several dependent variables are listed in the following diagram.



106. **Descending order** / අවරෝහණ පටිපාටිය / இறங்குவரிசை

Arranged in order starting from largest to smallest. For example 25 to 21 numbers can arrange in descending order as follows.

25 > 24 > 23 > 22 > 21.

107. **Descriptive statistics** / විස්තරාත්මක සංඛ්‍යානය / விபரணப் புள்ளிவிபரங்கள்

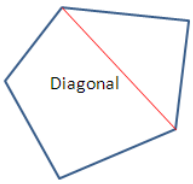
The branch of statistics involves collecting, summarizing, tabulating, analyzing and presenting data to extract their main features. Descriptive statistics use two methods: the numerical method and the graphical method. For example, calculating means and variance belong to a numerical method and plotting histograms belong to the graphical method.

108. **Deviation** / අපගමන / விலகல்

The deviation is a measure of the difference between the observed value of a variable and some other value, often from the mean of the variable.

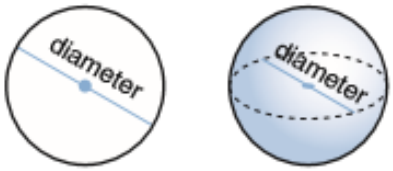
109. **Diagonal** / විකර්ණය / மூலைவிட்டம்

A line segment joining two nonconsecutive vertices of a polygon.



110. **Diameter** / විෂ්කම්භය / விட்டம்

A line segment that passes through the center and intersects at two points of the circumference of a circle.



111. **Difference** / වෙනස / வித்தியாசம்

Gives the result of the subtraction of one number or algebraic quantity from another. For example, the difference between 23 and 9 would be $23 - 9 = 14$, and $4x - 3y = 6$ shows the difference between two algebraic quantities.

112. **Dimensions** / මාන / பரிமாணங்கள்

Number of attributes in a dataset. For example, a healthcare dataset included three attributes (blood pressure, weight and cholesterol level) has three dimensions.

113. **Directional conclusion /** දිශා නිගමනය / நெறிப்படுத்திய (திசைப்படுத்திய) முடிவு

A conclusion given using a statistical test considering the direction of true parameter lies in relation to the null-hypothesized value. For example, one tailed tests leads to directional conclusions.

114. **Discrete variable** / විවික්ත විචල්‍ය / பின்னகமாறி

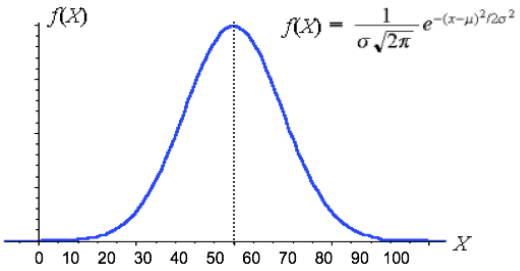
A variable that has distinct values where no other value exists between two adjacent data points. Usually, variable record values are discrete variables. The number of children in a family, the number of rainy days in a month, and the length (in days) of the longest dry spell during the growing season are examples of such data.

115. **Dispersion of a distribution /** අපගමන ව්‍යාප්තිය / பரம்பலொன்றின் பரவுகை

The degree of spread exhibited by data in a variable. Typically it is measured using standard deviation and variance.

116. **Distribution of a variable /** විචල්‍යක ව්‍යාප්තිය / பரம்பலொன்றின்மாறி

Give all values of a variable along with their associated probabilities. For example following diagram shows the distribution of values and their probabilities of a normally distributed variable.

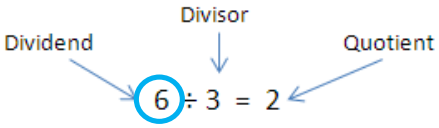


117. **Distributive Law** / විසටන නාය/ விநியோகிக்கக்கூடிய

The law relating the operations of multiplication and addition, symbolically it is $a(b + c) = ab + ac$; that is, the monomial factor a is distributed, or separately applied, to each term of the binomial factor $b + c$, resulting in the product $ab + ac$. From this law it is easy to show that the result of first adding several numbers and then multiplying the sum by some number is the same as first multiplying each separately by the number and then adding the products.

118. **Dividend /** භාජ්‍ය / வகுஎண்

A number that is being divided by another number (i.e., divisor).



119. **Division** / බෙදීම / வகுத்தல்

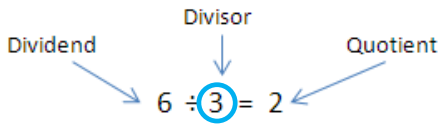
For a finite set, this is the process of partitioning the set into subsets of equal size. For natural numbers, division re-expresses a given natural number in terms of a multiple of a smaller natural number and a remainder. For example, 68 = 7 × 9 + 5, so 68 *divided by* 9 is equal to 7 with 5 remainder. Using rational numbers in fractional form, this is expressed exactly as:

$$68 \div 9 = \frac{68}{9} = 7\frac{5}{9} = 7.555\ldots$$

In general, for non-zero real numbers, if $z = xy$ then $z \div y = \frac{z}{y} = x$. Division of real numbers can also be modeled using lengths of line segments on a number line and similar triangles.

120. **Divisor** / භාජකය /வகுக்குமெண்

A number that divides another number (i.e., dividend).

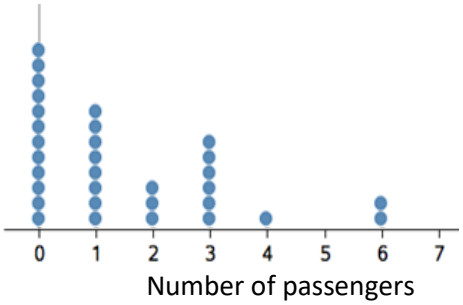


121. **Domain of function /** ෙයදවුම් සමූහය / எல்லை சார்பு

The set of all possible inputs or values of the independent variable, x.

122. **Dot plot** / තිත්සටහන / புள்ளி வரைபு

A dot plot is a graph used in statistics for organizing and displaying numerical data. Using a number line, a dot plot displays a dot for each observation. When there is more than one observation, or observations are for same value, the dots are stacked vertically. The dot plot below displays the number of passengers (except driver) observed in 32 cars stopped at a traffic light:

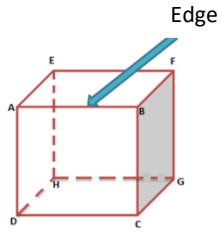


123. **Dummy variable** / අනුව්‍යාජ විචල්‍ය / போலி மாறி

Represent the qualitative predictors in a regression model and code 1 if the case falls into a certain category of an explanatory variable and 0 otherwise.

124. **Edge** / දාරය / விளிம்பு

A straight line or curve that forms the boundary of a region in the plane (such as the side of a triangle, or an edge in a network) or a boundary between two surfaces (such as the rim of a can or the edge of a box).



125. **Element of a set** / කයක අවයව / உறுப்பு ள்

Element is an undefined term that informally corresponds to the notion of *belonging* or *membership* of a set. For example, 3 *is a member* of the set of natural numbers $N = \{0, 1, 2, 3, \ldots\}$. This relation can be written more concisely as $3 \in N$. The symbol '$\in$' is a short-hand for 'is an element of'. The number 1/2 is *not* a natural number, and this can be written as $1/2 \notin N$, where $\notin$ is a shorthand for 'is **not** an element of'.

126. **Empirical data** / ආන දත්ත / அனுபவ தரவு

Data that is collected through observation, questioning or experiment.

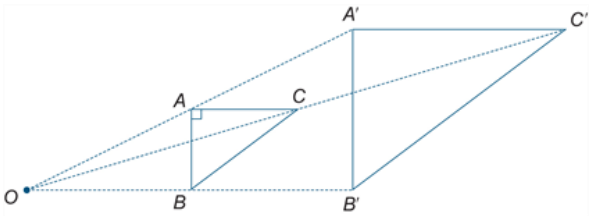
127. **Empty set** / අහපිශ කයක/ வறும் தொடை

The empty set { } is the set containing no elements and is sometimes represented by the special symbol Ø.

128. **Enlargement (dilation)** / වපිශාල්ක පිරගීම/ கீரிவா் ம்

A transformation that scales up (or down) a figure in which the corresponding lengths in the transformed figure are in proportion to the original figure. In enlargement, the relative positions of points are unchanged, and the two figures will be similar.

In the diagram given below, triangle A′B′C′ is the image of triangle ABC enlarged by factor, 2 with center of enlargement, O.

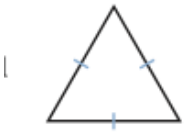


129. **Equation** / සමීකරණය / சமன்பாடு

A mathematical sentence stating that two expressions are equal. An equation contains an equal sign (=). Three examples for equations are 3 + 4 = 7, x+ 4 = 7 and 3x = 12.

130. **Equilateral triangle** / සමපාද ත්‍රිකෝණය / சமபக்க முக்கோணி

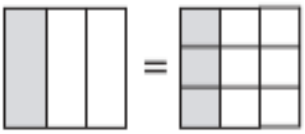
A triangle with three congruent sides.



An equilateral triangle

131. **Equivalent fractions** / තුල්‍ය භාග / சமவலுப் பின்னங்கள்

Fractions that represent the same amount. For examples: 1/3 = 3/9 it shows in the following diagram.



132. **Error** / දෝෂය /வழு

The difference between an actual/measured/observed value and it's estimated or predicted value and is defined as:

$$Error \ = \ measured \ or \ estimated \ value \ - \ actual \ value$$

133. **Estimation** / ඇස්තමේන්තුව / மதிப்பீடு

The process by which an unknown population parameter is calculated from the sample data.

134. **Estimator** / නිමානකය /மதிப்பான்

A quantity calculated from the sample data, which is used to give information about an unknown parameter of the population. For example, the sample mean is an estimator of the population mean. Estimators of population parameters are sometimes distinguished from the true (but unknown) population parameter by using the “hat” symbol. For example, $\hat{\mu} = \bar{x}$ is used to indicated the estimate of the population mean, μ.

135. **Evaluate** / අගය සෙවීම / மதிப்பிடு

The process of calculating or finding a value using some rules. For example, evaluating the expression, $3x + 4$ after substituting $x = 10$, gives $3 \times 10 + 4 = 34$.

136. **Even number** / ඉරට්ටේ සංඛ්‍යා / இரட்டை எண்

An integer that is a multiple of two, including zero. For example, numbers: 2, 4, 6, 10, 20,100.....

137. **Event /** සිද්ධි / நிகழ்ச்சி

A subset of the sample space of a random experiment. For example, if the set of outcomes of the experiment tossing two coins is {HH, HT, TH, TT}, where H represents a 'head' and T is a 'tail', the event A can be defined as obtaining at least one head thus A = {HT, TH, HH}.

138. **Experimental design** / පරීක්ෂණ සැලසුම / பரிசோதனைவடிவமைப்பு

The way of planning and conducting an experiment to draw valid and objective conclusions.

139. **Experimental error** / පර්යේෂණාත්මක දෝෂය / சோதனை வழு

The difference between measurement of two equally treated experimental units.

140. **Experimental study** / පර්යේෂණාත්මක අධ්‍යනය / சோதனை ஆய்வு

A study in which treatments (levels of the explanatory variables) are administrated to experimental units to evaluate the effects o treatment/s. A well-designed experimental study can establish a cause-and-effect relationship between the response and explanatory variables.

141. **Explanatory variable (a.k.a. regressor, predictor, covariate)** / විවරණ විචල්‍ය / விளக்கல் மாறி (விளக்கும் மாறி, எதிர்வுகூறி)

A variable that has been manipulated in an experiment by a researcher. It is used to identify the effect of that variable on the response variable. An explanatory variable is often called an independent/ predictor/ variable or regressor/ covariate.

142. **Exponent** /දර්ශකය / அடுக்கு

A real number that indicates how many times a base number is to be multiplied by itself. For example, in the expression, $3^4 = 3 \times 3 \times 3 \times 3$, 3 is the base number and 4 is the exponent.

143. **Exponential function** / ඝාතීය ශ්‍රිතය / அடுக்கு சார்பு

A function representing the relationship between input and output, where it use repeated multiplication of initial value to get the output for any given input. Exponential functions can grow or decay very quickly. Exponential functions are often used to model things in the real world, such as populations, radioactive materials, and compound interest.

144. **Expression** / ප්‍රකාශය / கோவை

Sentence with a minimum of two numbers or variables and at least one math operation which can be addition, subtraction, multiplication, or division (e.g. x+2, y-1).

145. **External validity** / බාහිර වලංගුභාවය /வெளியகத் தகவுநிலை

The extent to which the results of a study can be generalized to a larger, known population.

146. **Extrapolation** / බහිර්නිවේශනය; බිහිතැන් සෙවීම/ புறச்செருகல்

Estimating values from a data set for those values beyond the data range. In regression analysis, for example, a value of the response variable may be estimated from the fitted equation. This is for an observation with explanatory variable values beyond the range used in deriving the equation.

147. **F test /** F පරීක්ෂාව/ F சோதனை

A statistical test in which the test statistic has an F-distribution under the null hypothesis. Basically used to decide whether two populations' variances are equal or not.

148. **Factor** / සාධකය / காரணி

Refer to a categorical variable, with a small number of levels, evaluated in an experiment as a possible source of variation.

149. **Factor analysis** / සාධක විශ්ලේෂණය / காரணிப்பகுப்பாய்வு

A procedure that postulates that the correlations or covariance between a set of observed variables, $x' = [x_1, x_2, ..., x_q]$, arise from the relationship of these variables to a small number of underlying, unobservable, latent variables, usually known as the common factors, $f_1, f_2, ..., f_k$, where $k < q$.

150. **Factorial** / ක්‍රමාරෝපිතය / காரணியம்

The number formed by the product of a given natural number with all the natural numbers including same number and numbers less than that number. For example, the factorial of 4, is $4! = 4 \times 3 \times 2 \times 1 = 24$. In general, expression for n factorial is given as

$$n! = n \times (n-1) \times (n-2) \ldots \times 3 \times 2 \times 1.$$

151. **Factorial designs** / සාධකාත්මක හෝ ක්‍රමාරෝපිත මෝස්තරය / காரணியக்கோலம் / காரணியவடிவமைப்பு

Experimental designs used to test the effects of more than one factor, or variable in a single experiment. For example effect on fertilizer levels and verities can be evaluated in a two factor factorial experiment.

152. **Factorise** / සාධක සෙවීම / காரணிப்படுத்தல்

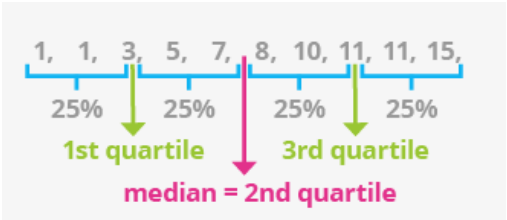
Expressing algebraic expression as a product of simpler forms. For example $15\ x^2 - 16$ can be expressed as $(x + 4)(x - 4)$.

153. **Finite** / පරිමිත / முடிவுள்ள

A limited or countable. For example, set {a, b, c, d, e} is a finite set or countable set where it has 5 elements. The set of all people alive on a given day is a very large, but it is called finite set. The opposite of finite is infinite.

154. **First quartile /** පළමු චතුර්ථකය / முதலாம் காலணை

The value in a distribution such that 25 % of the cases have lower values than that value and 75% of cases greater than that. Following diagram illustrates 1^{st},2^{nd} and 3^{rd} quartiles.



155. **Fixed effects** / ස්ථාවර බලපෑම් / நிலையான விளைவுகள்

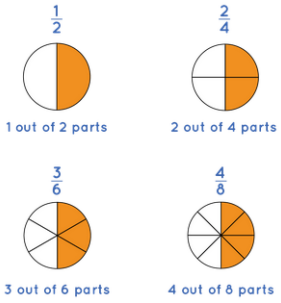
The effects attributable to a finite set of levels of a factor that are of specific interest. Fixed effects models contain only factors of this type of effect. Conclusions from such models are only applicable to the studied levels. For example, the investigator may wish to compare the effects of three particular drugs on a response variable, in which case he can only draw conclusions regarding those three drugs.

156. **Forecast** / භාවිකථනය (අනාවැකි) / எதிர்வுகூறல்

The specific projection involving predicting future value of some process. Generally used in the context of the analysis of time series. Many different methods of forecasting are available, for example, using moving average models.

157. **Fraction** / භාගය / பின்னம்

A number that represents part of a whole, part of a set, or a quotient in the form, which can be read as '*a*' divided by '*b*'.

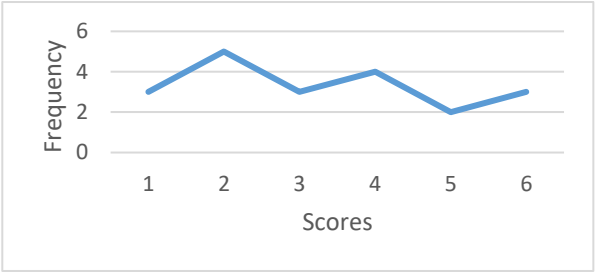


158. **Frequency** / සංඛ්‍යාතය / மீடிறன்

The number of times a value occurs in a set of data. For example, frequency of 5 and 6 in the set of observation {5, 4, 3, 2, 1, 1, 2, 5, 4, 6, 6, 6, 3, 2, 1, 4, 3, 2, 2, 4} is 2 and 3 respectively.

159. **Frequency graph** / සංඛ්‍යාත ප්‍රස්ථාරය / மீடிறன்வளையி

A graph showing how often each value occurs in a data set. For example, the frequency graph of above dataset is given below.

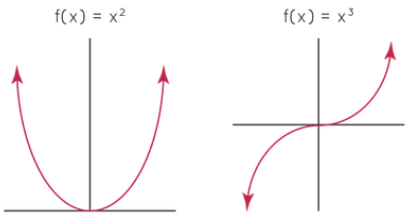


160. **Frequency table** / සංඛ්‍යාත වගුව / மீடிறன் அட்டவணை

A table in which data are tallied and organized is often a first step toward making a frequency graph. The following table shows the frequency table of the above dataset.

161. **Function** / ශ්‍රිතය / சார்பு

A relation in which each input (x-values or domain) is paired with one and only one output (y-values or range). If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x. Following graphs depicts two functions.



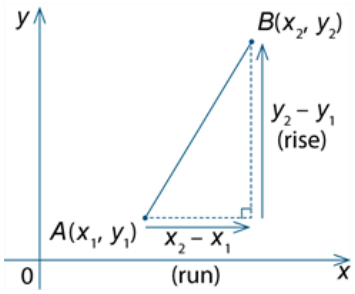
162. **Geometric mean** / ගුණෝත්තර මධ්‍යන්‍යය /பெருக்கல்இடை

A measure of location, calculated by taking the nth root of the products of all observations in the dataset. The geometric mean is calculate using the following function. The value of geometric mean is always less than or equal to the arithmetic mean.

$$\bar{x}_{\text{geom}} = \sqrt[n]{\prod_{i=1}^{n} x_i} = \sqrt[n]{x_1 \cdot x_2 \cdot \ldots \cdot x_n}$$

163. **Gradient /** අනුක්‍රමණය / படித்திறன்

If point $A(x_1, y_1)$ and points $B(x_2, y_2)$ are two points on the xy plane where $x_2 - x_1 \neq 0$, then the gradient of the line segment (interval) AB is given by $AB = \frac{\text{rise}}{\text{run}} = \frac{y_2 - y_1}{x_2 - x_2}$ as illustrated in the following diagram.



164. **Greatest common factor** / මහා පොදු සාධකය / பொது காரணிகளில் பெரிது

The largest common factor of two or more numbers. For example, the common factors of 24 and 36 are 1, 2, 3, 4, 6, and 12, and their greatest common factor is 12.

165. **Grouped data** / සමූහික දත්ත /கூட்டமாக்கியதரவு

Data recorded by dividing observations in to several intervals.
Following table shows an example of a grouped dataset.

Exam Score	Frequency
51-60	4
61-70	8
71-80	15
81-90	8
91-100	5

166. **Growth-curve modeling**/ වර්ධන-වක්‍රාකෘති නිර්මාණය / வளர்ச்சி-வளையிமாதிரியமாக்கல்

A data reduction technique used to summarize longitudinal data into a smooth curve defined by relatively few parameters for descriptive purposes or further inquiry.

167. **Harmonic mean** / හරාත්මක මධ්‍යන්‍යය / இசையிடை

The reciprocal of the arithmetic mean of the reciprocals of a set of observations, $x_1;x_2;...;x_n$. It is calculated by dividing the number of observations, or entries in the series, by the reciprocal of each number in the series using the following equation;

$$\frac{1}{H} = \frac{1}{n}\sum_{i=1}^{n}\frac{1}{x_i}$$

168. **Heterogeneous** / විෂමජාතීය / பல்லினமான

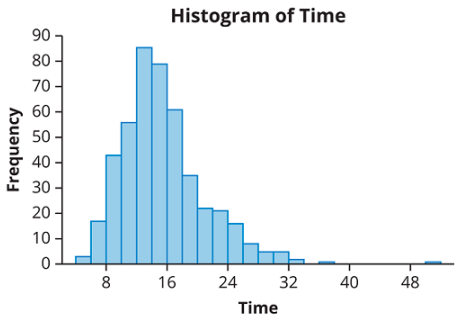
A term used in statistics to indicate the inequality of some quantity of interest (usually a variance) in a number of different groups, populations, etc.

169. **Heteroscedasticity** / විෂම ප්‍රචලතාව /பலபரவற்றன்மை

Situation in which random variables distributed with different values for their variances. The opposite case is called homoscedastic.

170. **Histogram** / ජාල රේඛය / வலையுரு வரையம்

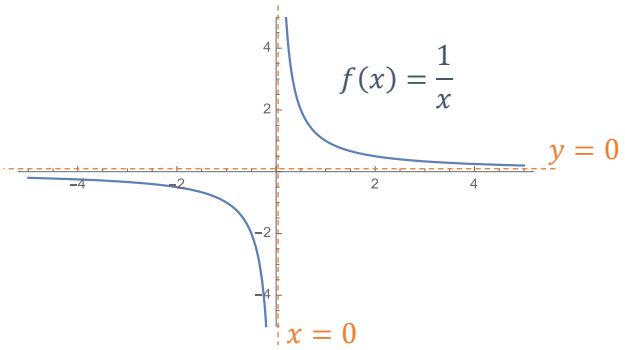
A bar graph displays the frequency distribution of data from a continuous random variable organized into equal intervals. In this graph, the horizontal axis is divided into continuous equal intervals; therefore, no spaces exist between the graph bars.



171. **Hyperbola (rectangular hyperbola)** / බහුවලය (සෘජුකෝණාස්‍ර බහුවලය) / அதிபரவளைவு (செவ்வக அதிபரவளைவு)

A non-connected intersection of a double cone and a plane. A rectangular hyperbola is a hyperbola having the transverse axis and the conjugate axis

of equal length. The function $f(x) = \frac{1}{x}$ is an example of a rectangular hyperbola and its' graph is given below:



172. **Hypotenuse** / කර්ණය / செம்பக்கம்

The side opposite to the right angle of a right triangle.

173. **Hypothesis** / කල්පිතය (උපකල්පිතය) / கருதுகோள்

A statement of belief about the value of one or more population parameters. For example, with 50 years of annual rainfall dataset, a hypothesis test could be conducted to test whether the mean is different in El Nino compared to ordinary years by forming the null hypothesis, H_0: the two means are equal and alternative hypothesis, H_1: the two means are not equal.

174. **Improper fraction** / විෂමභාගය / முறைமையில்லாப் பின்னம்

A fraction where the numerator is larger than the denominator. For example, 4/3, 5/2, 4/4, and 24/12 are improper fractions. In everyday Mathematics, improper fractions are sometimes called "top-heavy" fractions.

175. **Inclusion (subset) /** උපකුලක / உப தொடைகள்

A set ***A*** is a subset of another set ***B*** if all of the elements of ***A*** are also elements of ***B***. For example, if ***A*** = {vowels} and ***B*** = {letters of the alphabet} then ***A*** is a (proper) subset of ***B***, written symbolically as $\boldsymbol{A \subset B}$. If ***A*** is a subset of ***B***, and include all the elements of ***B*** then this is represented symbolically by $\boldsymbol{A \subseteq B}$.

176. **Independent event** / ස්වායත්ත (ස්වාධීන) සිද්ධි / சாரா நிகழ்ச்சி

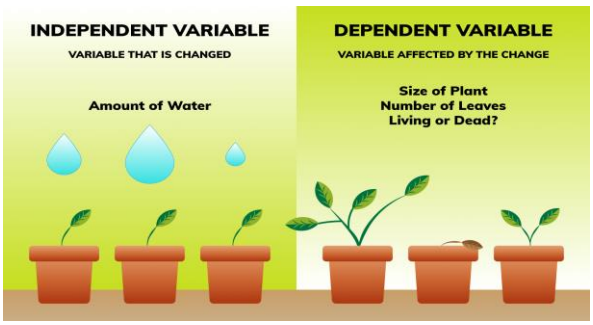
Two events are independent if knowing the outcome of one event gives no information about the outcome of the other event. This phenomenon can represent symbolically as $\Pr(A|B) = \Pr(A)$. This means that the probability of **A** given **B** is equal to the probability of **A**, that is, event **B** has no bearing on the probability of event **A** occurring.

177. **Independent-samples, pooled-variance t-test /** ස්වායත්ත නියැදි, කිටු විචලතා t-පරීක්ෂණය/சாராமாதிரி, தொகுதியிலானமாறற்திறன் சோதனை

A statistical test used to compare two population means using two independent samples drown from those populations. The pooled t-test assumes that the variances of two populations are equal.

178. **Independent variable** / ස්වායත්ත විචල්‍ය / சாரா மாறி

A variable being manipulated in an experiment to observe the effect of that variable on another variable. Also called a predictor variable. The following diagram illustrates the meaning of an independent variable using an example.



179. **Index /** දර්ශකය /சுட்டி

The index (exponent or power) of a number or algebraic expression is the power to which the base is to be raised. For example, for $a^3 = a \times a \times a$, the index is 3 and for $8^{2/3}$, the index is $\frac{2}{3}$. In general, if a is a positive real number and m and n are positive integers then,

$a^{m/n} = (a^m)^{1/n} = \sqrt[n]{a^m}$.

180. **Inequality /** අසමානතාව / சமனிலி

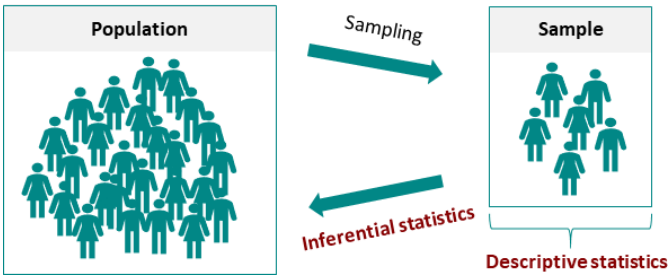
A mathematical statement (formulae) with a relation symbol other than =. Which include relations such as >, <, ≥, ≤ , ≠, or ≈.

181. **Inference** / අනුමිතිය / அனுமானம்

The process of deducing the properties of the underlying distribution or population using sample data or the process of generalizing from a sample to a population.

182. **Inferential statistics /** අනුමිතික සංඛ්‍යානය **/** அனுமான புள்ளிவிபரங்கள்

The body of statistical techniques concerned with making inferences about a population parameter based on the sample information (statistics).



183. **Infinite** / අනන්තය / முடிவில் (முடிவற்ற)

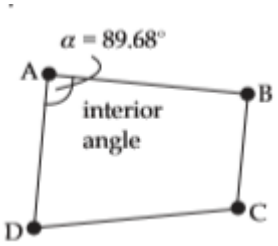
Something without any limit, that is a state of endlessness or having no time, space, or other quantity limits. For example the set of all prime numbers is an infinite set (there is no largest prime number).

184. **Integers** / නිඛිල / நிறைவெண்கள்

Whole positive and negative numbers including zero (0) within –∞ and +∞.

185. **Interior angle** / අභ්‍යන්තර කෝණය / அகக்கோணம்

An angle on inside a polygon formed by two adjacent sides of the polygon. Following diagram illustrates it.



186. **Internal validity** / අභ්‍යන්තර වලංගුභාවය / உள்ளகத் தகவுநிலை

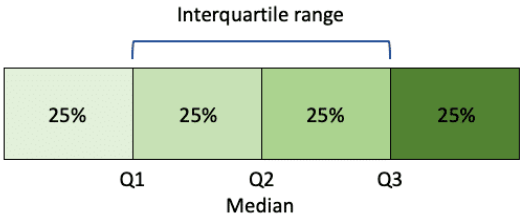
The degree of confidence that the causal relationship is not influenced by other factors or variables

187. **Interpolation /** අතුරු තැන් සෙවීම (අන්තර්නිවේශනය) **/**இடைச்செருகல்

Making predictions within the limit of the data set. For example, finding the possible value of a dependent variable at the midpoint of two figures of the independent variable.

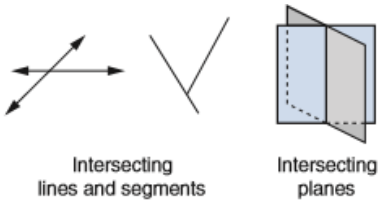
188. **Interquartile range** / අන්තශ්චතුර්ථක පරාසය / காலணை இடை வீச்சு

The difference between the upper quartile (3rd quartile) and the lower quartile (1st quartile) of a dataset. Following diagram depicts it.



189. **Intersect** / ඡේදනය / இடைவெட்டுதல்

The status of sharing a common point or points by two lines or planes. Following diagrams illustrates few examples.



190. **Intersection** / ඡේදනය /இடைவெட்டு

Given two sets ***A*** and ***B***, their intersection, written $A \cap B$, is the set of all elements common to both sets. If ***A*** and ***B*** have no elements in common, their intersection is call the dis-joint set { }. For example, if $A = \{a, b, d, z\}$ and $B = \{a, c, x, y, z\}$ then $A \cap B = \{a, z\}$; however, if $C = \{m, n\}$ then is a disjoint set and given by $A \cap C = \{\}$.

191. **Interval** / අන්තරය / ஆயிடை

A set of real numbers that contains all real numbers lying between any two numbers of the set. For example, the interval between 10 and 20 includes the set of all real numbers between 10 and 20.

192. **Inverse** / ප්‍රතිලෝම / நேர்மாறு

The opposite of another operation. Further, inverse can be defined as the element in the set which, when they are combined using the operation gives the identity. For example, the inverse of the integer + 4 with respect to the operation of addition is the integer −4 since + 4 + (−4) = 0 and −4 + (+ 4) = 0 (with zero being the additive identity). The inverse of the rational number $\frac{2}{3}$ with respect to the operation of multiplication is the rational number $\frac{3}{2}$ since $\frac{2}{3} \times \frac{3}{2} = 1$ (where 1 is the multiplicative identity).

193. **Inverse of an operations** / කර්මයක ප්‍රතිලෝමය / நேர்மாறான செயற்பாடுகள்

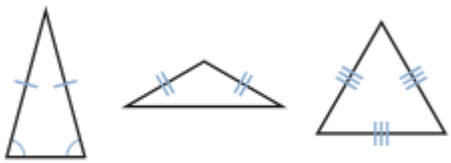
Opposite or reverse of an operation. For example, subtraction is the inverse operation of addition, thus 4 + 5 = 9 and 9 –5 = 4;and division is the inverse operation of multiplication, thus 4 x 5 = 20 and 20 ÷ 5 = 4.

194. **Irrational number** / අපරිමේය සංඛ්‍යාව / விகிதமுறா எண்கள்

A real number that cannot be expressed as a fraction (e.g., pi (π)); roots of prime numbers; and non-repeating, non-terminating decimals.

195. **Isosceles triangle** / සමද්විපාද ත්‍රිකෝණය /இருசமபக்கமுக்கோணி

A triangle with at least two equal sides. Following figures illustrates few examples.



Isosceles triangles

196. **Least common denominator** / කුඩා පොදු පොදුභරය /சிறிய பொதுப் பகுதியெண்

The smallest positive integer is a common multiple of all denominators of two or more fractions. For example, the least common denominator of 1/2, 4/5, and 3/8 is 40.

197. **Least common multiple** / කුඩා පොදු ගුණාකාරය / பொது மடங்குகளுள் சிறியது

The smallest number that is a multiple of two or more numbers. For example, common multiples of 6 and 8 include 24, 48, and 72; the least is 24.

198. **Left skewed** / ඇති (වම්) කුටිකතාවය / இடது ஓராயம்

Distributions with long tail at the left side of the curve or most of the values concentrated at upper side. Following graph shows a left skewed distribution.

Left-skewed distribution

199. **Left-truncated cases** / වමත් ලුප්ත අවස්ථා / இடது முண்டித்தவிடயங்கள்

Those who are not showing the effect for some times though exposed to the risk factor.

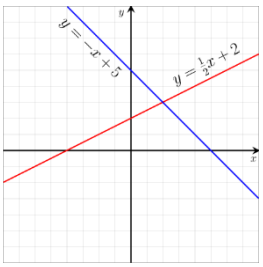
200. **Line** / රේඛාව / கோடு

A one-dimensional figure, which has length but no width. A line is made of a set of points.

201. **Likelihood function** / භව්‍යතා ශ්‍රිතය / இயல்தகவுச் சார்பு:
The joint probability of the observed data viewed as a function of the parameters of a statistical model.

202. **Likelihood-ratio chi-squared test** / භව්‍යතා අනුපාත කයි වර්ග පරීක්ෂණය /இயல்தகவுவிகிதகை வர்க்கச் சோதனை
A test of hypothesis in which two different maximum likelihood estimates of a parameter are compared in order to decide whether to reject or not to reject a restriction on the parameter.

203. **Linear function** / ඒකජශ්‍රිතය / ஒருபடிச்சார்பு
A function that represents a straight line on the coordinate plane. The general form of its equation is ***f(x) = mx + b*** .Following graph illustrates the graph of the linear function.



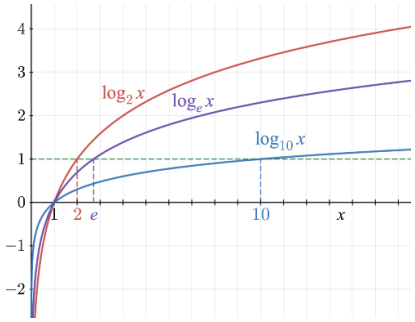
204. **Linear regression** / රේඛීය ප්‍රතිපායනය / ஏகபரிமாணப் பிற்செலவு
A statistical method determining the relationship between two or more variables. It involves using an independent or known variable to predict the dependent or response variable.

205. **Linearity in the parameters** / පරාමිතීන්හි රේඛීයතාව / பரமானத்தின் நேர்கோட்டியல்பு
No parameter appears in the regression model as an exponent, or multiplied or divided by another parameter.

206. **Log-likelihood** / ලඝු භව්‍යතාව /மடக்கைஇயல்தகவு
a measure of goodness of fit of a statistical model to a given set of data.

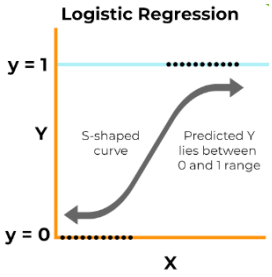
207. **Logarithmic function** / ලඝුගණක ශ්‍රිතය / மடக்கைச் சார்பு

The inverse of the exponential function. Following diagram depicts some logarithmic functions.



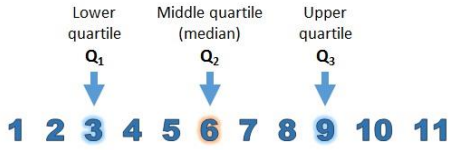
208. **Logistic regression** / ප්‍රවර්ධන ප්‍රතීපායනය / தகவுப் பொருத்தமானபிற்செலவு

A regression model with a binary variable. The model holds that the log of the odds for the event in question is a linear function of the explanatory variables. The estimation of the model is carried out using the maximum likelihood method. The following diagram illustrates the logistic distribution.



209. **Lower quartile** / පහළම යටත් චතුර්ථකය / கீழ்க் காலணை

The value under which 25% of data points are found when they are arranged in increasing order

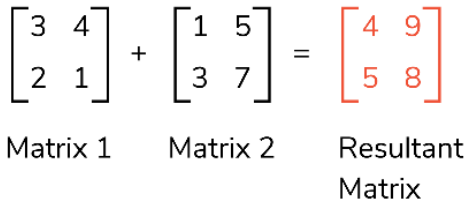


210. **Magnitude** / විශාලත්වය / பருமன்

Property which determines whether the object is larger or smaller than other objects of the same kind.

211. **Matrix** / න්‍යාසය /தாயம்

A set of numbers arranged in rows and columns so as to form a rectangular array. The numbers are called the elements, or entries, of the matrix.



212. **Mass** / ස්කන්ධය / திணிவு

The mass of an object measures how much matter the object contains. The SI unit for mass is the kilogram (kg).

213. **Maximum likelihood estimation** / උපරිම භව්‍යතා නිමානය /உச்ச இயல்தகவு மதிப்பீடு

A means of estimating the coefficients of a statistical model that relies on finding the coefficient values that maximize the likelihood function of the data sample.

214. **Mean of a variable** / මධ්‍යන්‍ය /மாறியொன்றின் இடை

Refers to the average of a set of values. The mean can be computed in several ways, including the simple arithmetic mean (add up the numbers and divide the total by the number of observations), the geometric mean, and the harmonic mean. It is the key measure of the central tendency.

215. **Measurable attributes** / මැනිය හැකි ගුණාංග / அளவிடக்கூடிய பண்புகள்

Characteristics of objects that can be measured. For example, length, mass, volume, capacity.

216. **Median of a variable** / විචල්‍යයන් හි මධ්‍යස්ථය / மாறியொன்றின் இடையம்

The median is the " value" of a list of numbers arranged in order. The order of the number list is either ascending or descending. If the list has an odd number of entries, the median is the middle entry after sorting the list into increasing or decreasing order. If the list has an even number of

entries, the median is halfway between the two middle numbers after sorting.

217. **Mensuration formulas** / මිනුම්සූත්‍ර / அளவியல்சூத்திரங்கள்

The measure of one quantity as a function of other quantities using an algebraic formula. For example, the area, A, of a circle radius, r, is defined by the mensuration formula $A = \pi r^2$ and the average speed, s, of a moving object which travels a distance d in time t is defined by the formula $s = \frac{d}{t}$.

218. **Missing data** / නැති දත්ත / தவறிய தகவல்

Unavailable data in a dataset for one or more variables. Following data set has few missing values.

ID	Color	Weight	Broken	Class
1	Black	80	Yes	1
2	Yellow	100	No	2
3	Yellow	120	Yes	2
4	Blue	90	No	2
5	Blue	85	No	2
6	**?**	60	No	1
7	Yellow	100	**?**	2
8	**?**	40	**?**	1

Missing values

219. **Mode** / මාතය / ஆகாரம்

The data value that appears most frequently in a given set of data. For example, in {6, 3, 9, 6, 6, 5, 9, 3} the Mode is 6, as it occurs most often.

220. **Multi-collinearity** / බහු-ඒකරේඛීයතාව / பல்லின ஏகபரிமாணவியல்பு

Situations where the explanatory variables are linearly related. It makes the problem of estimating the regression coefficients impossible.

221. **Multinomial logistic regression** / අනෙකපද ප්‍රවර්ධන ප්‍රතීපායනය / பல்லுறுப்பு தகவுப் பொருத்தமானபிற்செலவு

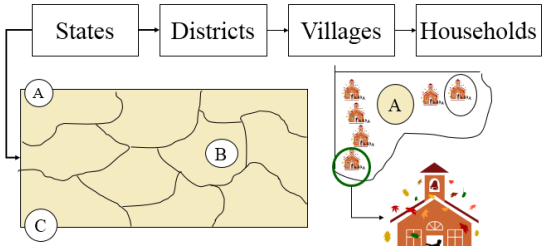
A logistic regression model used for modeling a dependent variable with more than two categories and independent variables.

222. **Multiple**/ ගුණාකාරය / ஒரு எண்ணின் மடங்குகள்

The product resulting from multiplying one number by another number.

223. **Multistage sampling** / බහුපිය නියැදීම / பலகட்டமாதிரியெடுப்பு

A method of sampling in which sampling units are selected in several stages. Following diagram illustrate an example for multistage sampling.

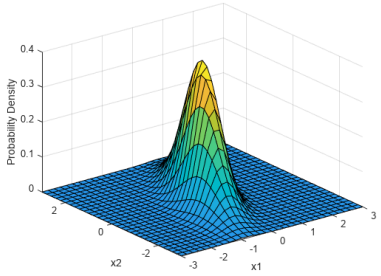


224. **Multivariate (or multivariable) analysis** / බහුවිචලය විශ්ලේෂණය / பன்மாறலிப் பகுப்பாய்வு

A generic term for the many methods of analysis important in investigating multivariate data. Examples include cluster analysis, principal components analysis and factor analysis.

225. **Multivariate normal distribution** / බහුවිචලය ප්‍රමත ව්‍යාප්තිය / பன்மாறலி செவ்வன்பரம்பல்

A generalization of the univariate normal distribution to two or more variables. It is a distribution for random vectors of correlated variables, where each vector element has the same univariate normal distribution. In the simplest case, no correlation exists among variables, and elements of the vectors are independent univariate normal random variables. The following diagram illustrates it for two variables (bivariate normal distribution).

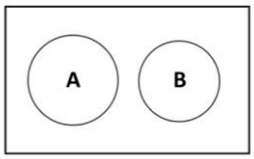


226. **Mutually exclusive events** / අන්‍යෝන්‍ය වශයෙන් බහිෂ්කාර සිද්ධි / தம்முள் புறநீக்கும் நிகழ்ச்சிகள்

Two events are said to be mutually exclusive if when one event occur the other cannot occur. On the other word, events that cannot occur jointly. Following diagram depicts two mutually exclusive events, ***A*** and ***B***.

$$P(A \text{ or } B) = P(A) + P(B)$$

$$P(A \text{ and } B) = 0$$



Note: No overlap between A and B

227. **Natural logarithm** / ස්වභාවික ලඝුගණකය / இயற்கை மடக்கை

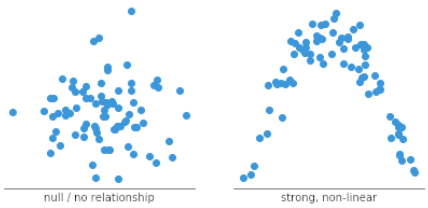
A number to the base **e** (Euler's constant: approximately 2.72) is known as a natural logarithm.

228. **Negative binomial regression /** ඍණාත්මක ද්විපද ප්‍රතිපායනය / மறை ஈருறுப்புப் பிற்செலவு

A generalization of Poisson regression which loosens the restrictive assumption that the variance is equal to the mean made by the Poisson model. The traditional negative binomial regression model, commonly known as NB2, is based on the Poisson-gamma mixture distribution. This is used for modeling count variables, usually for over-dispersed count outcome variables.

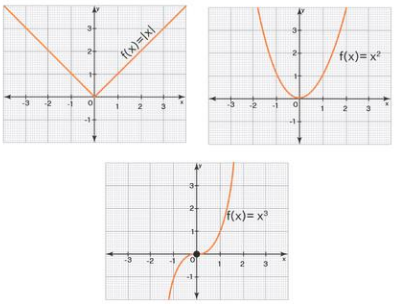
229. **Nonlinear association** / අරේඛීය සංසටනය / நீட்சிசாராதொடர்பு(நீட்சிசாராசேர்க்கை):

An association between two quantitative variables in which the scatter plot does not follow a linear trend.



230. **Non-linear function** / අරේඛීය ශ්‍රිතය / நீட்சிசாராசார்பு

A function that is not linear and whose graph is not a straight line. Following graphs illustrates few non-linear functions.



231. **Nonlinear interaction effect** / අරේඛීය අන්තර්ක්‍රියා ඵලය / நீட்சிசாராஇடைத் தாக்கம்

An interaction effect in which the nonlinear relationship between the dependent variable and an explanatory variable/s.

232. **Nonlinear model** / රේඛීය නොවන ආකෘතිය / நீட்சிசாராமாதிரி

A statistical model that is not linear in the parameters. The logistic regression model, the Poisson regression model, and the proportional hazards models are examples of nonlinear models.

233. **Nonparametric test** / අපරාමිතික පරීක්ෂණය / ஒப்பற்ற சோதனை

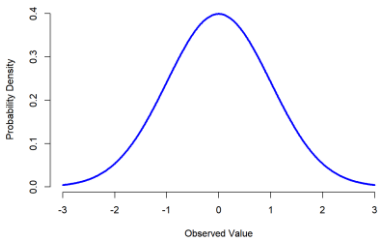
Statistical tests that do not assume anything about the underlying distribution. Due to this reason, they are sometimes referred to as distribution-free test.

234. **Nonprobability sample** / සසම්භාව්‍ය නොවන නියැදි / நிகழ்தகவற்ற மாதிரி

A sample in which select sampling units from the population using a subjective (non-random) method. Results obtained using this type of sample cannot be generalized.

235. **Normal distribution** / ප්‍රමත ව්‍යාප්තිය / செவ்வன் பரம்பல்

A continuous probability distribution wherein values lie in a symmetrical fashion around the mean with bell shape curve. Following diagram illustrates shape of the normal distribution graphically.

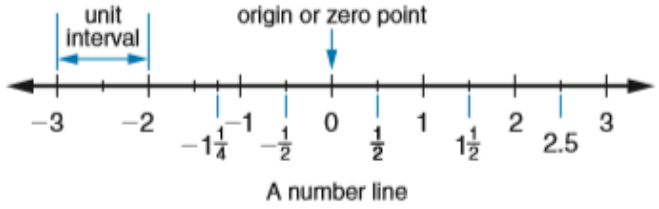


236. **Normality** / ප්‍රමිතිය / செவ்வன்மை

A term used to indicate that some variable of interest has a normal distribution.

237. **Number line** / අංක රේඛා රූපසටහන / எண்கோடு

A line on which points are indicated by line segments across the number line that are usually at regularly spaced intervals from a starting point called an origin, the zero point, or simply 0. Numbers are associated with the line segment on a scale defined by the unit interval from 0 to 1. Every real number locates a point on the line, and every point corresponds to a real number.



A number line

238. **Number pattern** / සංඛ්‍යා රටාව / எண் கோலம்

A pattern that can be described in terms of numerical relationships. Some patterns are, 2, 4, 6, 8, ... and 5, 7, 9, 11, ...

239. **Null hypothesis** / අප්‍රතිෂ්ඨේය කල්පිතය / சூனியக் கருதுகோள்

The statistical hypothesis that proposes that no statistical significance exists in a set of given observations. Following figure give a testable hypothesis.

H_0: Application of bio-fertilizer 'x' do not increase plant growth.

240. **Numeral** / සංඛ්‍යා / எண்ணுரு

Exists in the form of numbers

241. **Numerator** /ලවය / தொகுதிஎண்

The upper portion of a fraction. It shows how many of the parts indicated by the denominator are taken, for example in 2/3, 2 is the numerator.

242. **Numerical variable /** සංඛ්‍යාත්මක විචල්‍ය / எண்சார்மாறி

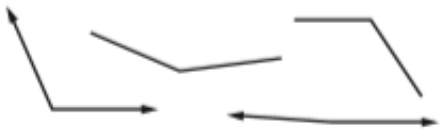
Numerical variables are variables whose values are numbers and for which arithmetic processes, such as adding and subtracting, or calculating an average, make sense.

243. **Observational study** / නිරීක්ෂණ අධ්‍යනය / அவதானிப்பு ஆய்வு

Any study in which the study treatments (or levels of the explanatory variables) are not randomly assigned to cases.

244. **Obtuse angle** / මහා කෝණය / விரிகோணம்

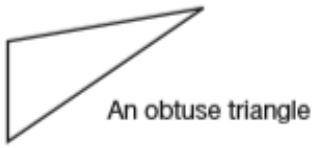
An angle whose measure is greater than 90º degrees.



Obtuse angles

245. **Obtuse triangle /** මහාකෝණික ත්‍රිකෝණය / விரிகோண முக்கோணி

A triangle in which one angle measures more than 90º degrees.



An obtuse triangle

246. **Odd number** / ඔත්තේ සංඛ්‍යා / ஒற்றையெண்

An integer that is not a multiple of two or that cannot be divided exactly by two. Examples include numbers such as 3, 5, 7, 9, 11....etc.

247. **Odds** / හව්මාව /வாய்ப்புக்கள்

The ratio of probabilities of two different events in a one trial.

248. **Odds ratio** / හව්මන අනුපාතය / முரண்பாடுகளின்விகிதம்

The ratio of the odds of an event for two different groups. Following diagram illustrates it graphically.

	Disease (Case)	No Disease (Control)
Exposed	A	B
Unexposed	C	D

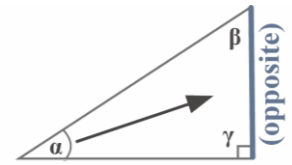
$$OR = \frac{\text{Odds that a case was exposed } (A/C)}{\text{Odds that a control was exposed } (B/D)} = \frac{AD}{BC}$$

249. **One-tailed test** /ඒක වලිග/වල්ග පරීක්ෂාව /ஒற்றைவால் சோதனை

The one-tailed test refers to a test of the null hypothesis, in which the alternative hypothesis is articulated directionally. Here, the critical region lies only on one tail. If the null hypothesis is false, the true parameter value is hypothesized to be either strictly above the null-hypothesized value or strictly below it.

250. **Opposite angle in a triangle** / ත්‍රිකෝණයක ප්‍රතිවිරුද්ධ කෝණය / முக்கோணியொன்றின் எதிர்க் கோணம்

The angle opposite a side of a triangle that is not one of the sides of the angle.



251. **Opposite number** / විරුද්ධ අංකය / எதிர் எண்

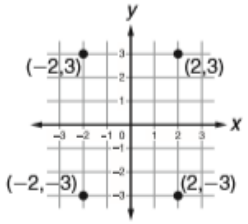
Two numbers with the same magnitude but have different signs (i.e., positive, negative) (e.g., 3 and -3).

252. **Order of operations** / ගණිත කර්ම සිදුකිරීමේ අනුපිළිවෙල / செயற்பாடுகளின் வரிசை

A set of conventions for evaluating arithmetic expressions that involve several operations. In general brackets (parentheses) can be used to provide priority, otherwise, the order of operations from left to right is exponents (powers, indices), then multiplication/division then addition/subtraction. For example, in $5 - 6 \div 2 + 7$, the division is performed first and the expression becomes $5 - 3 + 7 = 9$.

253. **Ordered pair /** පටිපාටිගත යුගල / வரிசைப்பட்ட சோடி

Two numbers, written in the form (***a, b***), that define the location of a point on a coordinate plane. The first number (i.e., ***a***) tells how far from the origin the point is on the horizontal axis (x-axis) and the second number (i.e., ***b***) tells how far from the origin the point is on the vertical axis (y-axis). Following diagram illustrate locations of 4 pairs.



Ordered pairs

254. **Ordinal logistic regression /** ක්‍රමසූචක ප්‍රවර්ධන ප්‍රතීපායනය / படிமுறைதகவுப் பொருத்தமானபிற்செலவு

A logistic regression model used to model dependent variables with more than two categories that can be ranked.

255. **Ordinal number** / ක්‍රමසූචක සංඛ්‍යාව / படிமுறை எண்

The position or order of something in a sequence, such as first, third, or tenth.

256. **Ordinal variable** / ක්‍රමසූචක විචල්‍යය / படிமுறைமாறி

An ordinal variable is a categorical variable in which the categories have an obvious order. For example, categories like strongly disagree, disagree, neutral, agree, strongly agree, or dry, trace, light rain, heavy rain.

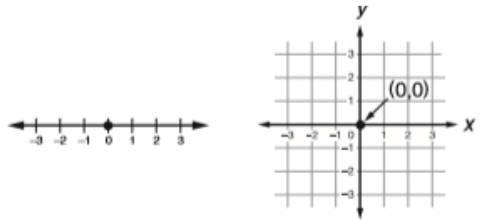
257. **Ordinary least squares (OLS)** / සාමාන්‍ය අඩුතම වර්ගයන් / படிமுறைஇழிவு வர்க்கம்

A method of estimating coefficients in linear regression and ANOVA models that depends on finding the estimates that minimize the sum of squared errors.

258. **Origin** / මූල ලක්ෂ්‍ය / உற்பத்திப் புள்ளி

The zero point in a coordinate system. On a number line, the origin is the point at 0. On a coordinate grid, the origin is the point (0,0) where the two

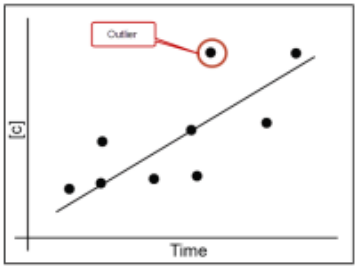
axes intersect. Following diagrams illustrate the location of origin in the number line and plane.



The points at 0 and (0,0) are origins.

259. **Outlier** / බාහිරස්ථය / புறக்கிடைகள்

A data point that lies outside the range of most of the other values in a set of data. Following diagram shows an outline observation.

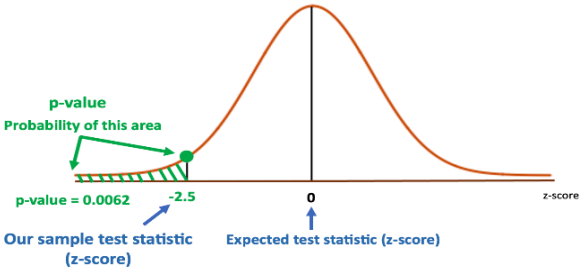


260. **Over dispersion parameter** / අධිවිචර්තන පරාමිතිය / மிகைவிலகல்பரமானம்

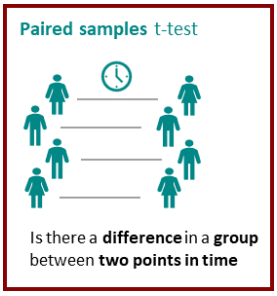
A parameter in the negative binomial regression model that allows for the model extra variance.

261. **P-value** / p වටිනාකම / p பெறுமானம்

The probability of obtaining sample results as least as unfavorable to the null hypothesis as was observed if the null hypothesis is true.

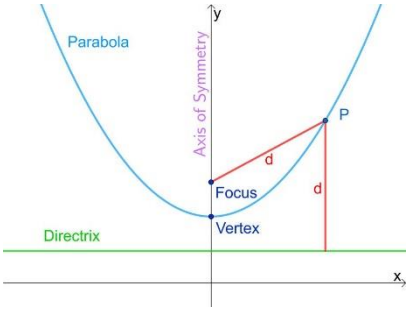


262. **Paired t-test** / යුගල t-පරීක්ෂණය / சோடியாக்கப்பட்ட tசோதனை A statistical test tests the difference between the means of two groups when the groups are not independently sampled. In this test, two measurements are obtained from one individual or case, illustrated in the following diagram.



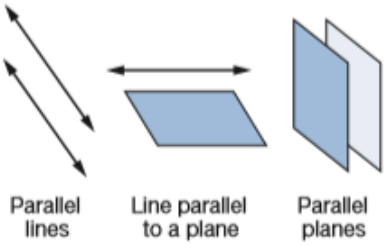
263. **Parabola** / පරාවලය / அநுவෘත්තය / பரவளைவு

A plane curve generated by the trace of a point moving in such a way that its distances from a fixed point (i.e., focus) and a fixed-line (i.e., directrix) are equal as illustrated below.



264. **Parallel lines/line segments** / සමාන්තර රේඛා / சமாந்தரக் கோடுகள்

Lines in a plane that never meet. Two parallel lines are always the same distance apart. Line segments or rays on parallel lines are parallel to each other as illustrated in following diagrams



265. **Parameter** / පරාමිතිය/ பரமானம்

A summary measure of some characteristic of the population, such as the population mean or proportion.

266. **Partial likelihood estimation** / අර්ධ සම්භාවිතා තක්සේරුව / பகுதி இயல்தகவு மதிப்பீடு

The estimation method used in regression analysis. It uses only the part of the likelihood function that is based exclusively on the regression coefficients.

267. **Partial regression coefficient (partial slope)** / ආංශික ප්‍රතිපායන සංගුණකය / பகுதி பிற்செலவு குணகம்

The coefficient of a predictor in a regression model contains more than one explanatory variable calculated by controlling the effect of all other predictors in the model.

268. **Percentile** / ප්‍රතිශතකය / சதமானம்

Values that divide a set of observations into 100 equal parts. The percentile rank is the proportion of values in a distribution that a specific value is greater than or equal to

269. **Perfect cubes** / පරිපූර්ණ ඝනය / நிறைகனம்

A number that can be expressed as the cube of a whole number. Few examples are given below.

$1^3 = 1$
$2^3 = 8$
$3^3 = 27$
$4^3 = 64$
$5^3 = 125$

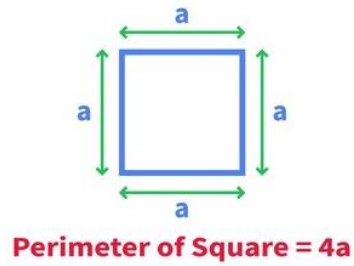
270. **Perfect squares** / පරිපූර්ණ වර්ගය / நிறைவர்க்கம்

A number that can be expressed as the square of a whole number. Few examples are given below.

$1^2 = 1$
$2^2 = 4$
$3^2 = 9$
$4^2 = 16$

271. **Perimeter** / පරිමිතය / சுற்றளவு

The distance that surrounds a plane area.

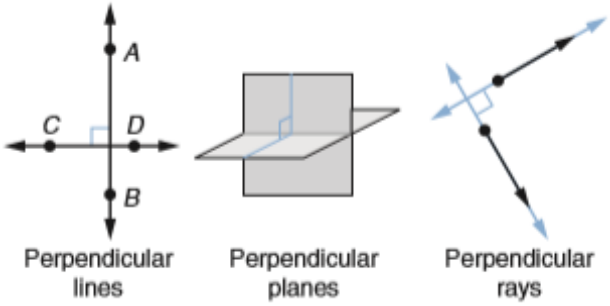


272. **Permutation** / සංකරණ / வரிசைமாற்றம்

a mathematical calculation of the number of ways a particular set can be arranged considering the order of the arrangement.

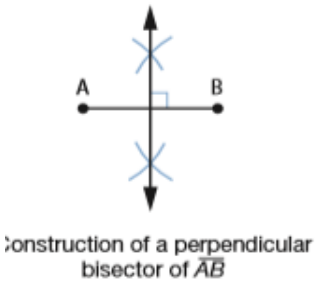
273. **Perpendicular** / ලම්බය / செங்குத்தான

Things which intersect at 90° to form a right angle. Following diagrams show three perpendicular arrangements.



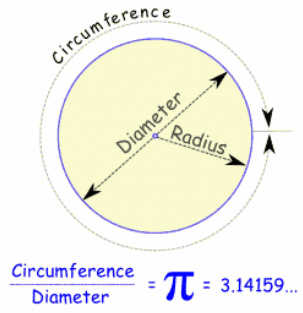
274. **Perpendicular bisector**/ ලම්බ සමච්ඡේදකය / இருசமவெட்டிச்செங்குத்து (செங்குத்திருசமவெட்டி)

A line, ray, or segment that bisects a line segment forming a right angle.



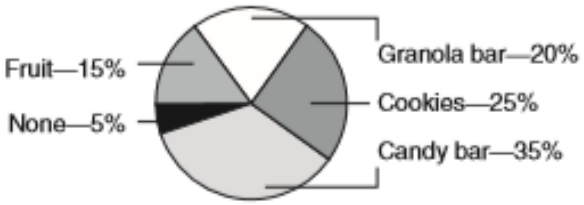
275. **Pi (π) /** පයි /பை

An irrational number that represents the ratio of the circumference of a circle to its diameter. The concept is illustrated in the following diagram.



276. **Pie chart**/ වට ප්‍රස්ථාර / வட்ட வரைபு

A circular chart that has been divided into sectors, where each sector is proportional in size to the data it represents. Following diagram illustrate a Pie chart.

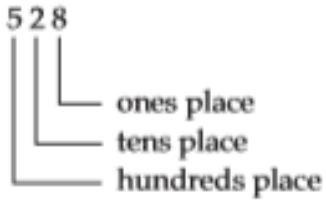


277. **Pilot survey** /නියමු සමීක්ෂණය /முன்னோடி கணக்கெடுப்பு/ஆய்வு

A small-scale investigation carried out before the main survey primarily to gain information and to encounter the problems that can occur before the main survey.

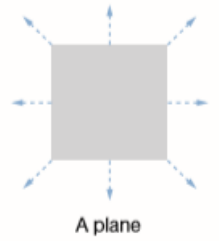
278. **Place value** / ස්ථානීය අගය / இடப்பெறுமானம்

The numerical value of a digit in a numeral. For example, place values of a three digits figure can be given as follows.



279. **Plane** / තල / தளம்

A flat, two-dimensional surface that extends infinitely in all directions. Following diagram depicts a plane.



280. **Point** / ලක්ෂ්‍ය / புள்ளி

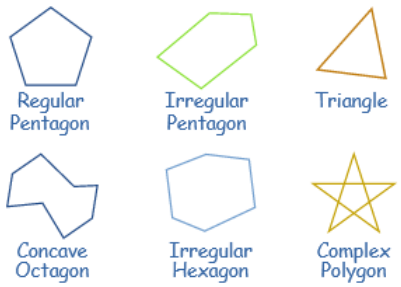
A precise location or place on a plane or in a space, is usually represented by a dot.

281. **Poisson regression** / පොයිසෝන් ප්‍රතීපායනය / புவசோன்பிற்செலவு

A statistical method used for develop relationship between a count variable and explanatory variables assuming the Poisson distribution.

282. **Polygon** / බහුඅස්‍රය / பல்கோணி

A closed, two-dimensional figure with three or more sides (edges). Following diagrams illustrates several polygons.



283. **Polynomial** / බහුපද / பல்லுறுப்பி

An expression consisting of variables and coefficients that involves only the operations of addition, subtraction, multiplication, and positive-integer powers of variables.

284. **Population** / සංගහනය / குடித்தொகை

A set of all items or events which is of interest for some question or experiment.

285. **Power of the test /** පරීක්ෂක බලය / சோதனையின் வலு

The probability that rejecting a false null hypothesis in a particular statistical test.

286. **Prime factorization** / ප්‍රථමක සාධකකරණය / முதன்மைக்காரணிப்படுத்தல்

A method of writing a composite number as a product of its prime factors. For example, 12 can be written as 2 × 2 × 3 or 4 × 3.

287. **Prime number** / ප්‍රථමක සංඛ්‍යා / முதன்மை எண்

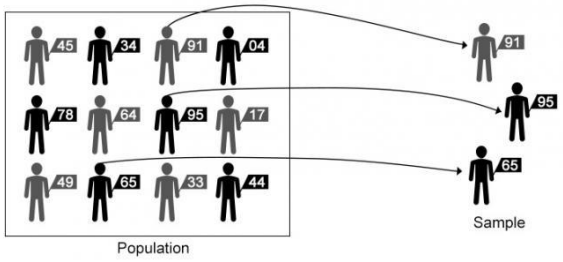
A counting number that can divide by one and the number itself. For an example, 7 is a prime number because its only factors are 1 and 7.

288. **Probability** / සම්භාවිතාව/ நிகழ்தகவு

A measure of likelihood of occurring an event. For example, On tossing a coin, the probability of getting head is: P(Head) = P(H) = ½. Similarly, on tossing a coin, the probability of getting a tail is: P(Tail) = P(T) = ½.

289. **Probability sample** / සම්භාවිතා නියැදිය / நிகழ்தகவு மாதிரி

A sample obtained by a method in which everyone in a finite population has a known (but not necessarily equal) chance of being included in the sample. For example, a sample obtained using the simple sampling method is a probability sample.



Probability Sampling

290. **Probability distribution** / සම්භාවිතා ව්‍යාප්තිය / நிகழ்தகவுப் பரம்பல்

A statistical function that describes all the possible values and likelihoods that a random variable can take within a given range. This range will be bounded between the minimum and maximum possible values.

291. **Probit analysis** / සම්භාවික විශ්ලේෂණය / தகவலகுப் பகுப்பாய்வு

A statistical analysis which used probit transformation to develop the relationship between a binary response variable and a independent variable/s.

292. **Product** / ගුණිතය / பெருக்கம்

Numerical value obtained by multiplying two or more other numbers together. For example, the product of 4 × 3, is 12.

293. **Product of powers property** / බල ගුණිතය /வழுக்களின் பெருக்க இயல்பு

A rule applied when multiply two numbers with the same base and different exponents and it is equals the same base number raised to the sum of the exponents and can be illustrated as follows.

$$a^m \cdot a^n = a^{m+n}$$

294. **Proportion** / සමානුපාතය / விகிதசமம்

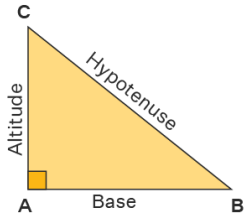
A part, share or a number considered in comparative relation to a whole.

295. **Pseudo-R^2 measure** / ව්‍යාජ නිර්ණය සංගුණක මිනුම / போலி R^2அளவீடு

Measures of the goodness of fit of a regression model in logistic regression, where the outcome is binary (e.g., yes/no, true/false). It is called "pseudo" because it does not have the same statistical properties as the R-squared measure used in traditional linear regression.

296. **Pythagorean theorem** / පයිතගරස් සිද්ධාන්තය / பைதகரசின் தேற்றம்

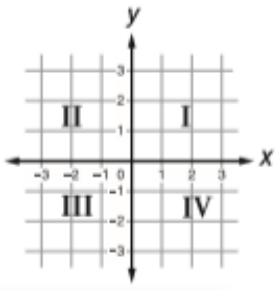
The theorem explaining the relationship between the sides of a right-angled triangle. As per this theorem, if the length of two sides of a right angled triangle are ***a*** and ***b*** and the hypotenuse is ***c***, they are related as $a^2 + b^2 = c^2$. This theorem is illustrated in the following figure.



$BC^2 = AB^2 + AC^2$

297. **Quadrant** / පාදකය / கால்வட்டம்

One of the four sections where a rectangular coordinate grid divided by the two axes of a coordinate plane. The quadrants are typically numbered I, II, III, and IV counterclockwise beginning at the upper right. It is illustrated in the following diagram.



298. **Quadratic equation** / වර්ගජ සමීකරණ / இருபடிச்சமன்பாடு

The general quadratic equation for a variable x **is** $\boldsymbol{ax^2 + bx + c = 0}$, for constants a, b, c and where $a \neq 0$. The solutions for this equation (roots) are given by the quadratic formula given below.

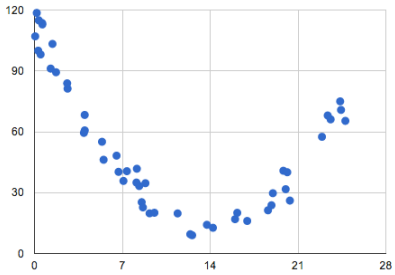
$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

299. **Quadratic expression** / වර්ගජ ප්‍රකාශන / இருபடிக்கோவை

An expression or function contains one or more of the terms in which the variable is raised to the second power (second degree) and no any variable is raised to a higher power except 2. Examples of quadratic expressions include $3x^2 + 7$ and $x^2 + 2xy + y^2 - 2x + y + 5$.

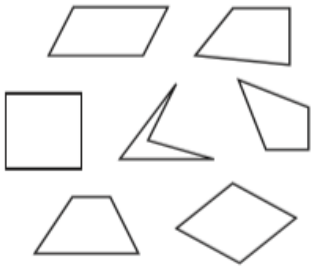
300. **Quadratic model** / වර්ගජ ආකෘතිය /இருபடி மாதிரி

A regression model includes a variable and its square as an explanatory variable. Such a model allows for a nonlinear relationship between the dependent and independent (explanatory) variables. The graph of this model will have a bend as follows.



301. **Quadrilateral** / චතුරශ්‍රය / நாற்பக்கல்

A polygon with four sides. Different shapes of quadrilateral are given below.



Quadrilaterals

302. **Qualitative variable** / ගුණාත්මක විචල්‍ය / பண்பு மாறி

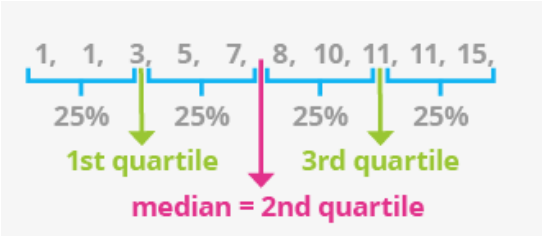
A variable whose values indicate a difference in kind, or nature. Even if represented by numbers, the values convey no quantitative meaning. For example, gender, breed of cow, taste of cake, level of education.....etc.

303. **Quantitative variable** / ප්‍රමාණාත්මක විචල්‍ය / கணிய மாறி

A variable whose values indicate either the exact amount of the characteristic present or a rank order on the characteristic. For example, the number of students in a class, household size of villages, height of a plant, and age of an individual, .etc.

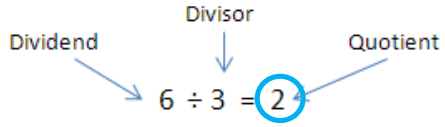
304. **Quartiles** / චතුර්ථක / காலணைகள்

Three values that split sorted data into four parts, each with an equal number of observations. Quartiles are a type of quantile. First quartile: Also known as Q1, or the lower quartile. Second quartile: Also known as Q2, or the median. Third quartile: Also known as Q3, or the upper quartile. It is illustrated in the following diagram.



305. **Quotient** / ලබ්ධිය / ஈவு

The number we obtain when it divided one number by another in a quotient as given in the following illustration.

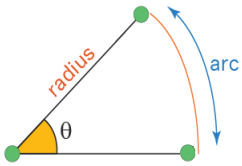


306. **R-squared (R^2)**/ නිර්ණය සංගුණකය /துணிபுக் குணகம்

Known as the coefficient of determination, is used to explain the degree to which input variables (predictor variables) explain the variation of output variables (predicted variables). It ranges from 0 to 1. For example, if the R-squared is 0.9, it indicates that 90% of the variation in the output variables is explained by the input variables or the model.

307. **Radian** / රේඩියනය / ஆரையன்(ஆரைக்கோணம்)

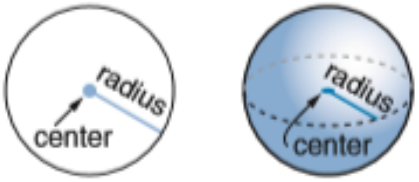
A unit for measuring angles. It is defined as the ratio of the circumference of a circle to its radius as illustrated in the following diagram.



$$\theta = \frac{\text{arc length}}{\text{radius}}$$

308. **Radius** /අරය / ஆரை

A straight-line segment starting from the circumference of a circle and goes upto its center.



309. **Random** / අහඹු / எழுமாறு

An event that is not predictable. For example, the sum of the numbers on two rolled dice cannot predict exactly before the experiment .

310. **Random number** / සසම්භාවී සංඛ්‍යා / எழுமாற்று எண்கள்

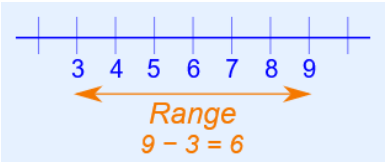
A number generated without considering any ordering or a pattern.

311. **Random sample** / සසම්භාවී නියැදිය / எழுமாற்று மாதிரி

A sample where each member in a population has an equal chance of being selected for the sample. An example of a simple random sample would be the names of 25 employees chosen by drawing 25 numbers after mixing the numbers from 1 -250 in a container. In this case, the population is all 250 employees, and the sample is random because each employee has an equal chance of being selected.

312. **Range of data** / දත්ත පරාසය / தரவின் வீச்சு

The difference between the highest and the lowest value of a given data set. It is illustrated in the following diagram.



313. **Range of function** / ක්‍රියාකාරී පරාසය / சார்பின் வீச்சு

The set of all possible outputs (y-values) of a function, given a specified domain (x-values).

314. **Rate** / සීඝ්‍රතාව / வீதம்

A ratio that compares quantities of different units (e.g., kilometres per hour, price per kilogram, students per class, heartbeats per minute).

315. **Ratio** / අනුපාතය / விகிதம்

A relationship between two quantities. It is often expressed as *a* to *b*, a:b, or a/b.

316. **Rational numbers** /පරිමේය සංඛ්‍යා / பகுத்தறிவு எண்

Any number that can be written as a fraction, where the numerator (the top number) and the denominator (the bottom number) are integers, and the denominator is not equal to zero.

317. **Real numbers** / තාත්වික සංඛ්‍යා / மெய்யெண்கள்

Numbers than can be located in the number line and it is the union of both rational numbers (e.g., 0, 1, 2, ¾, 0.125, etc.) and irrational numbers (e.g., π, √3, √10, etc.).

318. **Reciprocal** / පරස්පරය / நிகர்மாற்று

Inverse of a value or a number. For example, if *n* is a real number, then its reciprocal will be **1/n** and the reciprocal of 9 is 1 divided by 9, i.e. 1/9.

319. **Recurring decimal** / පුනරාවර්ථන දශම / மீளும்தசமம் (முடிவில் தசமம்)

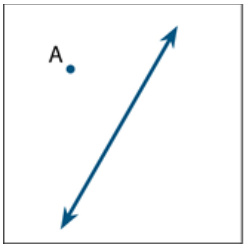
A decimal that contains a pattern of digits that repeats indefinitely after a certain number of places. For example, 0.1070707 ...

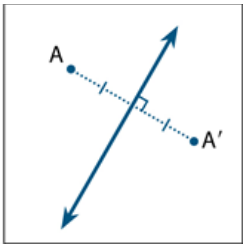
320. **Recursion** / පුනරාවර්ථනය / மறு சுழற்சி

The process of carrying out the current step of a process using the results of the previous step (or steps) of the same process. For example, the sequence of numbers {3, 6, 12, 24, …} can be described using recursion as 'start at 3 and make the next term in the sequence twice the previous term in the sequence.

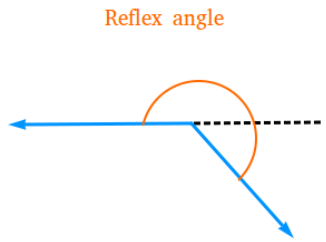
321. **Reflection** / පරාවර්තනය/ தெறிப்பு

Transformation of the plane where each point in the plane is reflected in a given mirror line. To reflect point ***A*** in an axis of reflection**,** a line has been drawn at right angles to the axis of reflection and point ***A′*** is marked at the same distance from the axis of reflection as *A*, but on the other side. Point A′ is called the reflection image of A. This is illustrated in following diagrams





322. **Reflex Angle** / ප්‍රත්‍යවර්ත කෝණය / பின்வளை கோணம்
An angle of magnitude between 180° and 360° is called a reflex angle and illustrated in the following diagram.



323. **Remainder** / ශේෂය / மீதி
The amount left over after dividing two integers. For example, the answer of 19 ÷ 5 is "3 with a remainder of 4", which means that 19 can be divided by 5 into 3 parts but with 4 left over, and is usually written "3 R 4".

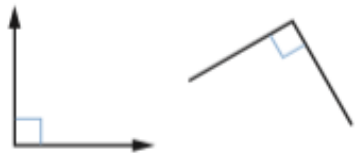
324. **Research hypothesis** / පර්යේෂණ කල්පිතය / ஆராய்ச்சி கருதுகோள்
A specific, clear, and testable proposition or predictive statement about the possible outcome of a scientific research study based on a particular population property. This includes presumed differences between groups on a particular variable or relationships between variables.

325. **Reverse causation** / ප්‍රතිලෝම හේතුව / எதிர்மறை காரண ரியத்தொடர்பு
The direction of the cause-and-effect relationship between the two variables which is the opposite of the common presumption about the cause-and-effect relationship between those variables. For instance, if the common belief is that X causes a change in Y, the reverse causality will mean that Y is causing changes in X.

326. **Revolution (angles)** / පරිභ්‍රමණය / சுழற்சிக்கோணம்
The amount of turn required to rotate a ray about its endpoint until the image ray first coincides with the original ray. The measure of 1 revolution is 360 degrees, written 360°, or 2π radians. This is illustrated in the following figure.

327. **Right angle** / සෘජුකෝණය / செங்கோணம்

An angle that with 90 degrees. Two right angles are illustrated below.



Right angles

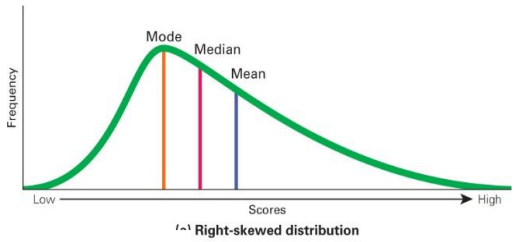
328. **Right triangle** / සෘජුකෝණිකත්‍රිකෝණය / செங்கோண முக்கோணி

A triangle with one angle has 90 degrees. Two right angles are illustrated bellow.

Right triangles

329. **Right skewed /** දකුණුනැඹුරුව **/** வலது ஓராயம்

A distribution in which most values are clustered around the left tail of the distribution while the right tail is longer. The following diagram depicts a right-skewed distribution.



Right-skewed distribution

330. **Risk** / අවදානම / இடர் (ஆபத்து)

The probability of occurrence of an event or outcome

331. **Risk set** / අවදානම්කුලක / இடர்களின் தொகுப்பு

In survival analysis, the total group of subjects who are at risk for event occurrence at any given time.

332. **Robust** / ශක්තිමත් / வலுவான

The property of a statistical procedure of providing valid results even when the assumptions for that procedure are not met.

333. **Rounding- off** / වටැයීම / மட்டந்தட்டல்

To approximate a number to make it easier to work with, or to make it better reflect the precision of the data.

334. **Sample** / නියැදිය / மாதிரி

A selected subset of a population chosen by some process usually with the objective of investigating particular properties of the parent population. Following diagram illustrates the concept of population and sample.

335. **Sample size** / නියැදි තරම/ மாதிரிப்பருமன்; மாதிரிஅளவு

Number of participants or observations included in a sample. This number is usually represented by n.

336. **Sample standard error of a variable** / සම්මත දෝෂය /மாறியின் மாதிரி நியம வழு

Variance of sample statistics. For example, the sample mean.

337. **Sampling distribution** / නියැදුම්ව්‍යාප්තිය / மாதிரியெடுப்புப் பரம்பல்

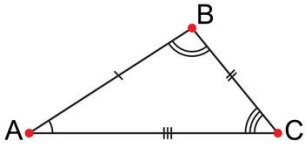
The probability distribution of a sample statistic.

338. **Sampling frames** / නියැදුම් රාමු / மாதிரி சட்டங்கள்

A list of all the units from which the sample is selected. Geographical listings, maps, directories, membership lists, or telephone or electronic formats usually define them.

339. **Scalene triangle** / විෂමපාද ත්‍රිකෝණය / சமனில்பக்கமுக்கோணி

A triangle with three sides of different lengths.

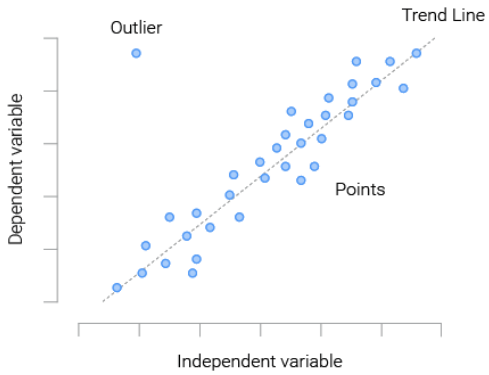


340. **Scalar** / අදිශ / பருமன்

A quantity having magnitude but no direction, such as mass or length.

341. **Scatter Plot** / විසිරි තිත් සටහන / சிதறல் வரைவு

A graphical display of the association between two quantitative variables. It is created by plotting points representing the intersection of each variable's values.



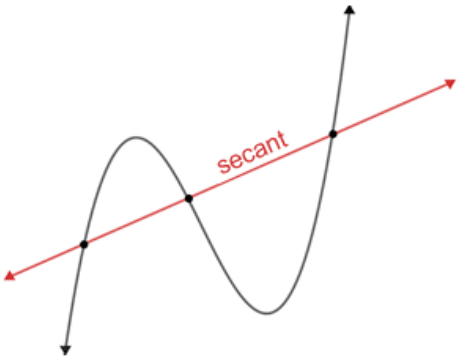
342. **Scientific notation** / විද්‍යාත්මක අංකනය / விஞ்ஞானமுறைக் குறியீடு

A way of expressing very large or very small numbers in the form $a \times 10^b$, where coefficient a is any real number and exponent b is an integer. For example, following illustrations show expression of numbers in the scientific notation.

$$45{,}000 \longrightarrow 4.5 \times 10^4$$
$$7.6 \times 10^{-4} \longrightarrow 0.00076$$

343. **Secant** / සීකනය / செக்-சிகன்ட்

A line that cuts any curve in at least two different points. Following diagram illustrates the location of a secant.



344. **Sector of a circle** / වෘත්තයක කේන්ද්‍රකඛණ්ඩය / வட்டமொன்றின் ஆரைச்சிறை

A portion of a circle formed by two radii and an arc.

345. **Selection bias** / වරණ අභිනතිය / கோடிய தெரிவு (பக்கச்சார்பான தெரிவு)

Distortion of a statistical analysis, resulting from the method of collecting samples

346. **Sensitivity analysis** / සංවේදීතා විශ්ලේෂණය / உணர்திறன் பகுப்பாய்வு

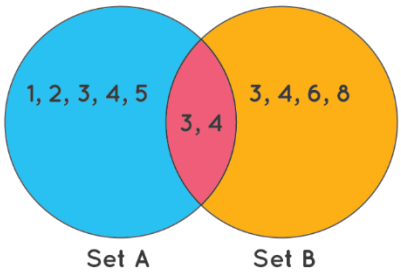
The study of how uncertainty in the output of a mathematical model or system (numerical or otherwise) can be divided and allocated to different sources of uncertainty in its inputs.

347. **Sensitivity of classification** / වර්ගීකරණයේ සංවේදීතාව / பகுப்பாக்க உணர்திறன்

the probability of a positive test result, conditioned on the individual truly being positive.

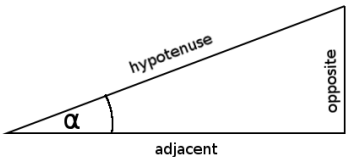
348. **Set** / කුලකය / தொடை

A collection of well-defined objects or elements. A set is represented by a capital letter symbol as illustrated below.



349. **Sine** / සයිනය / சைன்

The ratio of the length of the side lying opposite of an acute angle to the length of the hypotenuse in a right triangle. It is illustrated in the following figure.



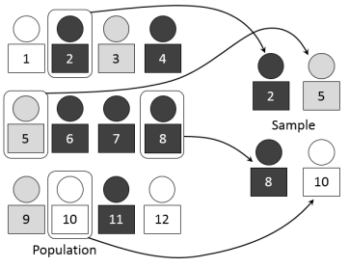
$$\sin \alpha = \frac{\text{opposite}}{\text{hypotenuse}}$$

350. **Significance level** / වෙසෙසියා මට්ටම / கருதுகோளின் பொருண்மை மட்டம்

The probability of rejecting the null hypothesis when it is true. For example, a significance level of 0.05 indicates a 5% risk of concluding that a difference exists when there is no actual difference.

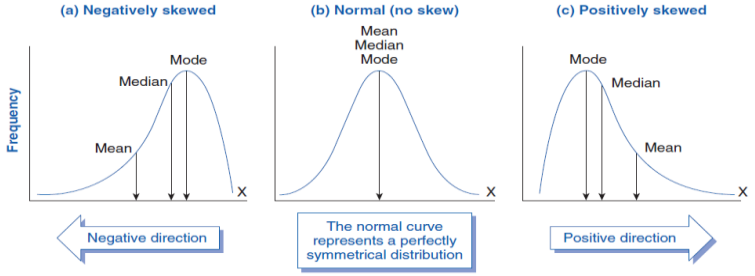
351. **Simple random sample** / සරල අහඹු නියැදිය / எளிய எழுமாற்று மாதிரி

A sample in which every member of the population has an equal chance of being selected for the sample. The following diagram illustrates the drawing of a simple random sample from a population.



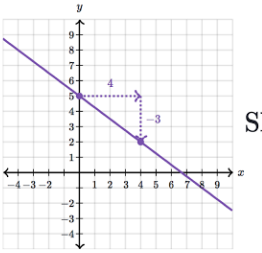
352. **Skew, skewness** / නැඹුරුව හෝ කුටිකතාව / சமச்சீரில்லாத (ஓராயம்)

A measure of the asymmetry of a distribution. A distribution is asymmetrical when its left and right sides are not mirror images. A distribution can have right (or positive), left (or negative), or zero skewness. The following diagrams illustrate different situations.



353. **Slope** / අනුක්‍රමණය / சாய்வு

An attribute of a line describing its steepness and direction. It is represented by a ratio of the increase in the y-coordinate to the change in the x-coordinate. Following diagram illustrates the calculation of the slope of a line.



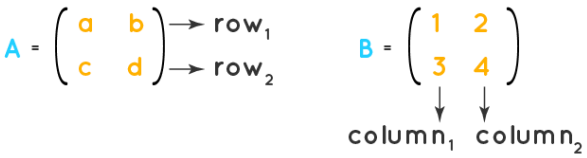
$$\text{Slope} = \frac{\Delta y}{\Delta x}$$

354. **Specificity of classification** / විශේෂිත වර්ගීකරණය / பகுப்பாக்க சிறப்புத்திறன்

The metric that evaluates a model's ability to predict true negatives of each available category.

355. **Square matrix** / සමචතුරස්‍ර න්‍යාසය / சதுர தாயம்

A matrix with the same number of rows and columns. An example of a square matrix is given below.

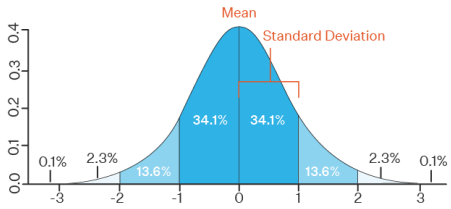


356. **Square root** / වර්ගමූලය / வர்க்கமூலம்

A function that maps the set of nonnegative real numbers onto itself. Thus, the square root of a number is a value, which on multiplication by itself, gives the original number. For example, 16 is 4 × 4, so the square root of 16 is 4.

357. **Standard deviation** / සම්මත අපගමනය / நியமவிலகல்

Statistic that measures the dispersion of a dataset relative to its mean and it is calculated as summation of squared deviations of numbers from their mean value.



358. **Standard error** / සම්මත දෝෂය / நியம வழு

The standard deviation of the sampling distribution. For example the deviation of sample means of different samples from their population mean.

359. **Statistics** / සංඛ්‍යානය / புள்ளிவிபரங்கள்

The science and art of collecting, analyzing, presenting, and interpreting data.

360. **Statistical control** / සංඛ්‍යානමය පාලනය / புள்ளிவிபரக் கட்டுப்பாடு

The use of statistical procedures to remove the influence of a particular factor that could not be eliminated or controlled by the experimental design to better analyze the relationship between variables. For example, the relationship between age (x) and income earned (y) could be influenced by a third variable, years of education (z). Thus, if a researcher did not first remove the effects of this third variable, the education conclusion from the analysis might be erroneous. Therefore, it is necessary to use an analytical method that incorporates statistical control, such as partial correlation or covariance analysis.

361. **Statistical interaction (stratification effects)** / සංඛ්‍යාන අන්තර්ක්‍රියාව / புள்ளிவிபர இடைத்தாக்கம்

The effect of one independent variable(s) on the dependent variable depends on the value of another independent variable(s)." Conversely, "Additivity means that the effect of one independent variable(s) on the dependent variable does NOT depend on the value of another independent variable(s).

362. **Statistical model** / සංඛ්‍යානමය ආකෘතිය / புள்ளிவிபர மாதிரி

A statistical model is a type of mathematical model that comprises the assumptions undertaken to describe the data generation process.

363. **Statistical significance /** සංඛ්‍යානමය වෙසෙසියාව / புள்ளிவிபர பொருண்மை

A measure of the probability of the null hypothesis being true compared to the acceptable level of uncertainty regarding the true answer.

364. **Straight angles** / සරල කෝණය / நேர்கோணங்கள்

An angle that measures 180 degrees. It is illustrated graphically in the following diagram.

365. **Strength of association** / සංසටනයේ ප්‍රබලතාව /சேர்க்கையின் வலிமை

The degree of relationship between two or more variables.

366. **Substitute** / ආදේශකිරීම / பிரதியீடு

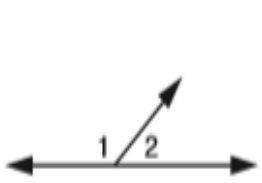
Replace one thing with another. For example, substituting b = 4.5 and h = 8.5 in the formula A = b ∗ h gives A = 4.5 ∗ 8.5 = 38.25.

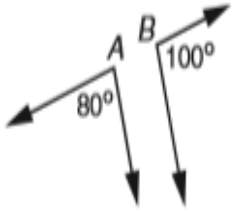
367. **Sum** / එකතුව / கூட்டுத்தொகை

The total amount resulting from the addition of two or more numbers, amounts, or items. For example, in 5 + 3 = 8, the sum is 8. Same as total.

368. **Supplementary angles** / පරිපූරක කෝණය / மிகைநிரப்பு கோணம்

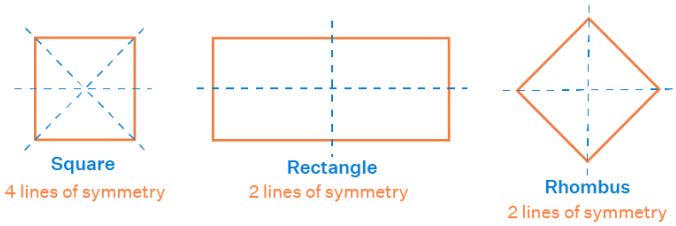
Supplementary angles are those angles that sum up to 180 degrees. Following diagrams illustrates two scenarios of making supplementary angles.





369. **Symmetric** / සමමිතික / சமச்சீர்

Made up of exactly similar parts facing each other or around an axis.

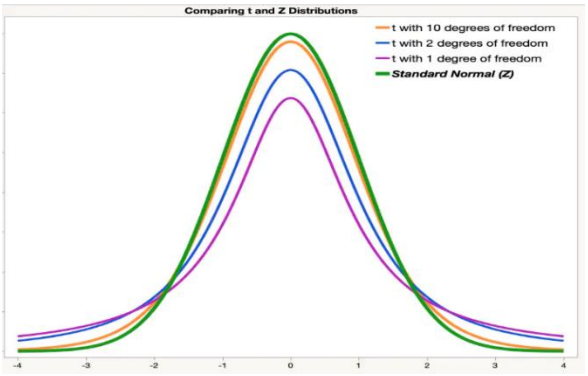


370. **Symmetric function** / සමමිතික ශ්‍රිතය / சமச்சீர் செயற்பாடு

A symmetric function is a function in several variables that remains unchanged for any permutation of the variables. For example, if $f(x,y) = x^2 + xy + y^2$, then $f(y,x) = f(x,y)$ for all x and y.

371. **t distribution** / t ව්‍යාප්තිය / t பரம்பல்

A continuous symmetric probability distribution function which is similar to the shape of the normal distribution but change with the sample sizes. Following figure compares the t-distribution and the standard normal distribution.

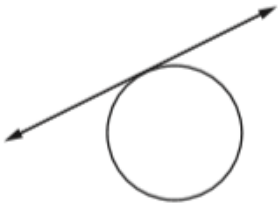


372. **Tally Marks** / ටැලිලකුණු / வரவுக் குறி

Tally marks are defined in the unary numeral system. It is a form of numeral used for counting. The general way of writing tally marks is as a group or set of five lines. The first four lines are drawn vertically, and each of the fifth lines runs diagonally over the previous four vertical lines, starting from the top of the first line to the bottom of the fourth line, as given in the following figure.

373. **Tangent line** / ස්පර්ශක රේඛා / தொடலிகோடு

A line that touches a curve at exactly one point. The tangent to a circle touch exactly one point on the circumference of the circle and is perpendicular to the radius at that point as illustrated in the following figure.



A line tangent to a circle

374. **Target population** / ඉලක්කගත සංගහනය / இலக்கு மக்கள் தொகை

The group of individuals that the intervention intends to conduct research in and draw conclusions from.

375. **Test of hypothesis** / උපකල්පිත පරීක්ෂණය / கருதுகோளின் சோதனை

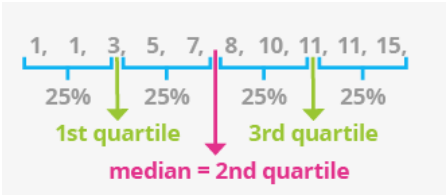
A systematic procedure for deciding whether the results of a research study support a particular theory or belief which applies to a population.

376. **Test statistic** / පරීක්ෂණ සංඛ්‍යානය / சோதனைப் புள்ளிவிபரம்

A random variable that is calculated from sample data and used in a hypothesis test. Some examples include calculated ***Z***, ***t*** and ***F*** values.

377. **Third quartile** / තෙවැනි චතුර්ථකය / மூன்றாம் காலணை

The value in a distribution such that 75 % of cases have lower values than that value and 25% of cases are higher than that.

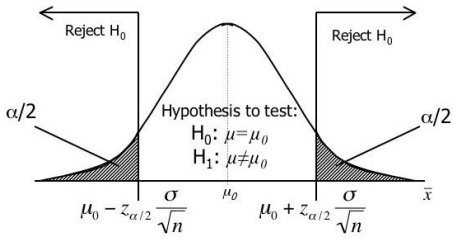


378. **Time-varying covariates** / කාල විචලන සහවිචලකයන්/ நேரம் மாறுபடும் கோவாரியட்டுகள்

Explanatory variables whose values can change at different occasions of measurement for the same subject.

379. **Two-tailed test /** ද්වි වලිග/වල්ග පරීක්ෂාව / இரு வால் சோதனை

A statistical test in which the total probability value of the test leave from both sides of the probability distribution. This is done to find the critical value to test whether the population value is greater than or less than a certain value. The following diagram illustrates the two-tailed test graphically.



380. **Type I error /** පළමු දෝෂය / 1வது வகை வழு

The probability of rejecting a true null hypothesis in a statistical test.

381. **Type II error /** දෙවන දෝෂය / 2வது வகை வழு

The probability of failing to reject a false null hypothesis in a statistical test. Following diagram illustrates the outcome of a statistical test.

		Truth	
	Hypothesis Testing	**The Null Hypothesis Is True**	**The Alternative Hypothesis Is True**
Research	**The Null Hypothesis Is True**	Accurate	Type II Error
	The Alternative Hypothesis Is True	Type I Error	Accurate

382. **Unbiased estimator** / අපක්ෂපාති තක්සේරුකරු / பக்கச்சார்பற்ற மதிப்பீட்டாளர்

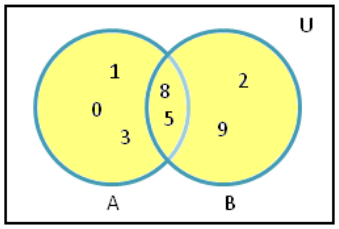
An estimator of a given parameter is said to be unbiased if its expected value is equal to the true value of the parameter.

383. **Uncensored cases** / වාරණය කළ නිරීක්ෂණ / தணிக்கை செய்யப்பெறாத நிகழ்ச்சிகள்

In survival analysis, those subjects experience the event of interest during the observation period of the study.

384. **Union of sets** / කුලක මේලය / தொடைகளின் ஒன்றிப்பு

The set of all the elements from two or more sets. Following Venn diagram shows the union of two sets.



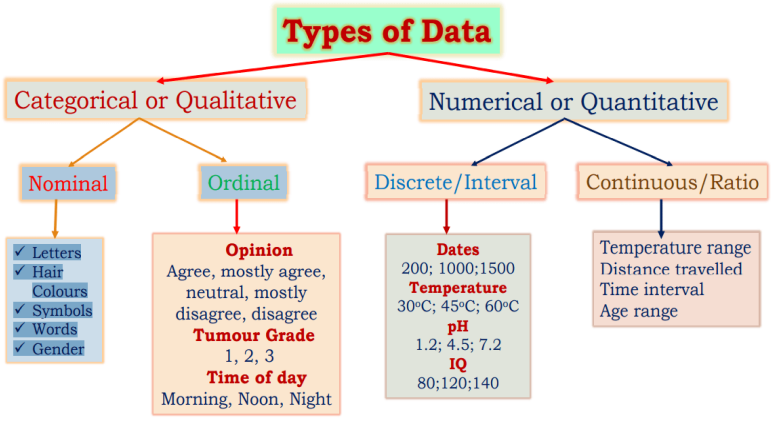
A U B = {0, 1, 2, 3, 5, 8, 9}

385. **Unmeasured heterogeneity** / මැනීමට ලක් නොකළ විෂමජාතීයතාව / அளவிடப்படாத பல்வகைத்தன்மை

Unobserved differences between study participants or samples that are associated with the variables of interest.

386. **Variable** / විචල්‍ය / மாறி

An attribute that describes a person, place, thing, or idea. · The value of the variable can "vary" from one entity to another. Following diagram classify and give examples for different types of variable encountered.



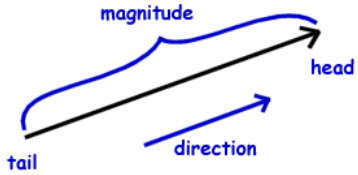
387. **Variance of a variable** / විචල්‍යතාව / மாறியொன்றின் மாறற்றிறன்

The measure of the spread of values from the population mean. It is calculated by obtaining the difference of each observation from the population mean, squaring the differences, and taking the average. Generally, the variance of a variable is the average of the squared deviations from its mean.

388. **Vector** / දෛශිකය / காவி

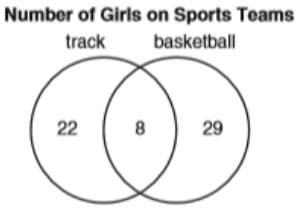
In mathematics a vector is a geometric quantity involving both magnitude and direction. Such as weight, displacement, force, velocity. Following diagram illustrates the concept of a vector graphically.

In statistics row or column of a matrix is called as a row and column vector respectively



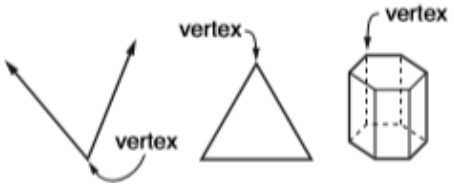
389. **Venn diagram** / වෙන්රූපසටහන / வென்வரிப் படம்

An illustration that uses circles to show relationships among things or finite groups of things. Circles that overlap have a commonality, while circles that do not overlap do not share those traits. Venn diagrams help to visually represent similarities and differences between two concepts. The following figure shows a Venn diagram.



390. **Vertex** / ශීර්ෂය / உச்சி

A point at which two-line segments, rays, or lines meet to form an angle. It can be also described as the corners of a polygon. Following diagrams illustrates some examples for Vertex.



391. **Whole numbers** / පූර්ණ සංඛ්‍යා / முழு எண்கள்

A number that does not include any fractions, negative numbers or decimals.

392. **Wilcoxon Rank Sum Test** / විල්කොක්ෂොන් ගේ තරා එකතු පරීක්ෂාව /வில்கொக்சன் தரவரிசை சோதனை

The statistical test used to compare two groups of nonparametric interval or not normally distributed data. It is often described as the nonparametric version of the two-sample t-test.

393. **X-axis** / x අක්ෂය / X-அச்சு

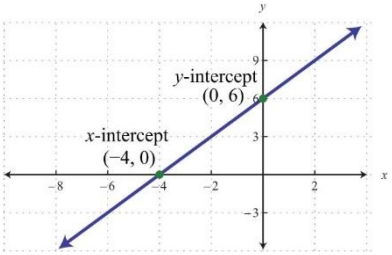
The horizontal axis of the coordinate plane.

394. **X-coordinate** / X ඛණ්ඩාංකය / X ஆள்கூறு

The first number in an ordered pair illustrates how many units away the point is located from the origin on the x-axis (horizontal axis).

395. **X-intercept** / X අන්තඃඛණ්ඩය / X - இடைவெட்டு

The point where a graph intersects the x-axis. Following diagram illustrates the X and Y intercepts.



396. **Y-axis** / Yඅක්ෂය / Y-அச்சு

The vertical axis of the coordinate plane.

397. **Y-coordinate** / Y ඛණ්ඩාංකය / Y ஆள்கூறு

The second number in an ordered pair illustrates how many units away the point is from the origin on the y-axis (vertical axis).

398. **Y-intercept** / Yඅන්තඃඛණ්ඩය / Y- இடைவெட்டு

The point where a graph intersects the y-axis.

399. **Zero exponent property** /ශූන්‍ය ඝාතීය ගුණය /பூச்சிய சுட்டிஇயல்பு

States that any nonzero base raised to a power of 0 is equal to 1. For example, $8^0 = 1$.

400. **Zero matrix** / ශූන්‍ය අනුකෘතිය / சுழி அணி (பூச்சிய அணி)

A matrix in which all elements are zero. It is also known as the null matrix. For example, the matrices given below are 2 x 2 and 3 x 3 zero matrices, respectively.

$$O_{2\,x\,2} = \begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$$

$$O_{3x3} = \begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$$

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86. Coordinate
87. Correlation coefficient
88. Corresponding angles
89. Cosine
90. Cotangent
91. Counter-clockwise
92. Counting numbers
93. Covariance
94. Cross multiplication
95. Cumulative frequency
96. Cumulative frequency curve
97. Cylinder

D (23 – 28 pages)

98. Data
99. Decimal
100. Decimal point
101. Degree
102. Degrees of freedom
103. Denominator
104. Density
105. Dependent variable
106. Descending order
107. Descriptive
108. Deviation
109. Diagonal
110. Diameter
111. Difference
112. Dimensions
113. Directional conclusion
114. Discrete variable
115. Dispersion of a distribution
116. Distribution of a variable
117. Distributive Law
118. Dividend
119. Division
120. Divisor
121. Domain of function
122. Dot plot
123. Dummy variable

E (28 – 32 pages)

124. Edge
125. Element of a Set
126. Empirical data
127. Empty set
128. Enlargement (dilation)
129. Equation

130. Equilateral
131. Equivalent fractions
132. Error
133. Estimation
134. Estimator
135. Evaluate
136. Even number
137. Event
138. Experimental design
139. Experimental error
140. Experimental study
141. Explanatory variable
142. Exponent
143. Exponential function
144. Expression
145. External validity
146. Extrapolation

F (32 – 35 pages)

147. F test
148. Factor
149. Factor analysis
150. Factorial
151. Factorial designs
152. Factorise
153. Finite
154. First quartile
155. Fixed effects
156. Forecast
157. Fraction
158. Frequency
159. Frequency graph
160. Frequency table
161. Function

G (35 – 36 pages)

H (37 – 38 pages)

I (38 – 42 pages)

N (49 – 52 pages)

O (52 – 55 pages)

P (55 – 62 pages)

Q (63 – 65 pages)

R (65 – 70 pages)

315. Ratio
316. Rational numbers
317. Real numbers
318. Reciprocal
319. Recurring decimal
320. Recursion
321. Reflection
322. Reflex Angle
323. Remainder
324. Research hypothesis
325. Reverse causation
326. Revolution (angles)
327. Right angle
328. Right triangle
329. Right skewed
330. Risk
331. Risk set
332. Robust
333. Rounding- off

S (70 – 77 pages)

334. Sample
335. Sample size
336. Sample standard error of a variable
337. Sampling distribution
338. Sampling frames
339. Scalene triangle
340. Scalar
341. Scatter Plot
342. Scientific notation
343. Secant
344. Sector of a circle
345. Selection bias
346. Sensitivity analysis
347. Sensitivity of classification
348. Set

349. Sine
350. Significance level
351. Simple random sample
352. Skew, skewness
353. Slope
354. Specificity of classification
355. Square matrix
356. Square root
357. Standard deviation
358. Standard error
359. Statistic
360. Statistical control
361. Statistical interaction
362. Statistical model
363. Statistical significance
364. Straight angles
365. Strength of association
366. Substitute
367. Sum
368. Supplementary angles
369. Symmetric
370. Symmetric function

T (77 – 79 pages)

371. t distribution
372. Tally Marks
373. Tangent line
374. Target population
375. Test of hypothesis
376. Test statistic
377. Third quartile
378. Time-varying covariates
379. Two-tailed test
380. Type I error
381. Type II error

U (79 - 80 pages)

382. Unbiased estimator
383. Uncensored cases
384. Union of sets
385. Unmeasured heterogeneity

V (80 – 81 pages)

386. Variable
387. Variance of a variable
388. Vector
389. Venn diagram
390. Vertex

W (81 - 82 pages)

391. Whole numbers
392. Wilcoxon rank sum test

X (82 page)

393. X-axis
394. X-coordinate
395. X-intercept

Y (82 page)

396. Y-axis
397. Y-coordinate
398. Y-intercept

Z (82 - 83 pages)

399. Zero exponent property
400. Zero matrix

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