Statistics and probability

International Baccalaureate · IB Diploma · Mathematics: Analysis and Approaches · HL · Vocabulary in context

Word	Example
population /ˌpɒpjʊ'leɪʃn/	Define the **population** before deciding whom to include.
sample /'sæmpl/	The **sample** contains the people selected for this study.
discrete data	**Discrete data** can take only certain values, such as the number of children in a family.
continuous data	**Continuous data** can take any value in a range, such as height or time.
outlier /'aʊtlaɪə/	Leave out the **outlier** when you draw the line.
mean /miːn/	The **mean** is the total divided by the number of values.
median /'miːdiːən/	Put the values in order before you find the **median**.
mode /məʊd/	The **mode** is the most common value.
quartile /'kwɔːtaɪl/	The lower **quartile** is a quarter of the way through the data.
interquartile range /ˌɪntə'kwɔːtaɪl reɪndʒ/	Subtract the lower quartile from the upper for the **interquartile range**.
standard deviation /'stændəd ˌdiːvɪ'eɪʃn/	A larger **standard deviation** means the values are more spread out.

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variance /'veərɪəns/	The **variance** is the square of the standard deviation.
cumulative frequency /'kjuːmjʊlətɪv 'friːkwənsi/	**Cumulative frequency** adds each count to all earlier counts.
box plot /bɒks plɒt/	A **box plot** displays the median and quartiles.
scatter diagram /'skætə 'daɪəgræm/	A **scatter diagram** shows two variables as points.
correlation coefficient /ˌkɒrɪ'leɪʃn ˌkəʊɪ'fɪʃənt/	The **correlation coefficient** r of a sample estimates the population value ρ. r ρ
regression line /rɪ'greʃn laɪn/	A **regression line** $y = a + bx$ is the line of best fit for predicting y from x. $y = a + bx$ x y
interpolation /ɪnˌtɜːpə'leɪʃn/	**Interpolation** estimates a value inside the range of the data.
extrapolation /ek'stræpəleɪʃn/	Predicting beyond the data is **extrapolation**.
probability /ˌprɒbə'bɪlɪti/	A fair coin gives **probability** one half for heads.
sample space /'sæmpl speɪs/	The **sample space** is the list of all possible outcomes.
mutually exclusive /'mjuːtʃuːəli eks'kluːsɪv/	**Mutually exclusive** outcomes cannot occur together.
conditional probability /kən'dɪʃənl ˌprɒbə'bɪlɪti/	Find the **conditional probability** using only the chosen group.
independent /ˌɪndɪ'pendənt/	**Independent** events do not change each other's probabilities.

Word	Example
tree diagram /tri: 'daɪəgræm/	A **tree diagram** shows each stage of a probability problem.
discrete random variable /dɪ'skri:t 'rændəm 'veərɪəbl/	A **discrete random variable** X takes separate values, each with a probability. X
expected value /ek'spektɪd 'vælju:/	The **expected value** of one dice roll is 3.5. 3.5
normal distribution /'nɔ:ml ˌdɪstrɪ'bju:ʃn/	A **normal distribution** has a symmetric bell-shaped density curve.
standardised value	A **standardised value** of z = 2 is two standard deviations above the mean. z = 2
Bayes' theorem	Use **Bayes' theorem** to update a probability after observing evidence.
continuous random variable /kən'tɪnju:əs 'rændəm 'veərɪəbl/	For a **continuous random variable**, probability is an area under a curve.
probability density function /ˌprɒbə'bɪlɪti 'densɪti 'fʌŋkʃn/	A **probability density function** describes a continuous random variable.

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