Distributions, standardisation and normal models

Learn and practise | Free preview

A sample from this topic. The complete topic collection contains three different resources and worked solutions.

Read the worked example, then show each step in the practice questions. A scientific, statistical or financial calculator, or suitable spreadsheet, can support these calculations. Record the formula, inputs and interpretation.

What you will practise

• Investigating data distributions

Useful starting skills: Relevant General Mathematics Units 1–2 arithmetic, algebra, statistics, matrices and networks.

Use numerical summaries and a suitable display to compare distributions. Sample standard deviation divides the squared-deviation total by n-1.

For an approximately normal population, about 68%, 95% and 99.7% lie within 1, 2 and 3 standard deviations of the mean. A z-score measures signed distance from the mean in standard-deviation units.

Worked example

A score 72 belongs to a distribution with mean 60 and SD 8. Find z.

$z=(72-60)/8=1.5$

the score is 1.5 standard deviations above the mean.

Answer: 1.5.

Try it yourself

Name: _____ Date: _____

1. Find mean and sample SD of 8, 10, 12.

2. A normal model has mean 100 and SD 15. Give its approximate 95% interval.

Answers and explanations

Check the method as well as the final answer. An alternative correct method is also valid.

1. Mean 10; SD 2.

Squared deviations total 8; divide by 2 and take the square root.

2. 70 to 130.

Use mean±2 SD.

Curriculum reference: General Mathematics Units 3–4 — Investigating data distributions

Independent original resource. Not published or endorsed by VCAA. This focused set supports the listed skills; it is not a complete course or an official assessment.

This free preview may be shared intact with attribution. Not for sale.