

## A cartoon illustration of a man with a friendly expression, wearing a white short-sleeved shirt, a blue necktie, and a white cap. He is holding a large, grey computer mouse with both hands. The mouse is oversized, nearly as tall as he is. He is standing on a small black shadow. The background is plain white.

**1. Standard normal tables**  
e.g. if  $Z$  is a standard normal variable,  
calculate  $P(-1 \leq Z \leq 1.48)$

A full-page view of a blank sheet of graph paper. The page features a uniform grid of small squares. A single vertical line runs down the center of the page, dividing it into two equal halves. The grid extends to the edges of the page.

e.g. A certain brand of chocolate bar has weight which is normally distributed with mean 150 g and standard deviation 5 g.

- 
- A full-page view of a blank sheet of graph paper. The page is covered by a uniform grid of small squares. A single vertical line runs down the center of the page, dividing it into two equal halves. The grid consists of approximately 20 columns and 20 rows of squares.

e.g.  $X$  is a continuous random variable which is normally distributed with mean 5.6 and standard deviation 0.8.

[illegible]

e.g. Paul plays an online game against many other players. On Monday, he scores 21050 and is told that for his group of players the mean and standard deviation are 19550 and 780 respectively. On Tuesday, he plays again against the same group of players. This time he scores 20440, and is informed that the mean and standard deviation are 19400 and 580 respectively. On which day did Paul perform better relative to the other players in his group? Give a reason.

A blank sheet of graph paper featuring a uniform grid of small squares. A vertical line runs down the center of the page, dividing it into two equal halves. The grid consists of 20 columns and 20 rows of squares.

e.g. A survey of 1200 consumers indicates that 525 intend to buy a new brand of dairy spread. Find the 95% confidence interval for the true proportion of consumers that intend to buy the new brand

- using the margin of error approximation,
- using  $z$  tables.

A blank sheet of graph paper with a light gray grid pattern. The grid consists of small squares. A vertical line runs down the center of the page, dividing it into two equal halves. There are also horizontal lines, creating a full grid across the entire page.

e.g. The standard deviation of the weight of a certain type of glass bottle produced by a factory is known to be  $4.5\text{ g}$ . A random sample of 500 of these bottles has a mean weight of  $270\text{ g}$ . Obtain a 95% confidence interval for the mean weight of all glass bottles of this type produced by the factory.

A blank sheet of graph paper featuring a uniform grid of small squares. A vertical line runs down the center of the page, dividing it into two equal halves. The grid consists of 20 columns and 20 rows of squares.

e.g. Election workers for a candidate, X, in an election have confidently predicted that she will gain 45% of the first preference votes and so top the poll. To test this claim, the workers for another candidate, Y, take a random sample of 1024 voters. This sample suggest that the support for candidate X is at 42%.

- State the null hypothesis and the alternative hypothesis.
- On what basis should the hypothesis be rejected or not rejected?
- Do you think the election workers for candidate Y have evidence to dispute the claim made by the election workers for candidate X? Give a reason.

A blank sheet of graph paper with a grid pattern. The grid consists of small squares formed by thin gray lines. A vertical line runs down the center of the page, dividing it into two equal halves. The top left corner of the page contains some faint, partially visible text from the previous page, which appears to be "The Cambridge IGCSE".

e.g. A car battery manufacturer claims that the average life of the batteries they produce is 4-6 years, with a standard deviation of 0-8 years. To test this claim, a random sample of 120 batteries was tested and their average life was found to be 4-8 years. Determine if there is enough evidence to conclude to conclude that the claim made by the battery manufacturer is not true, at the 5% level of significance.

A full-page view of a blank sheet of graph paper. The page is covered by a uniform grid of small squares. A single vertical line runs down the center of the page, dividing it into two equal halves. The grid consists of approximately 20 columns and 20 rows of squares.