

STANDARD SCORES

Z-scores, Standardised Scores.

Calculating Standard (z) Scores.

$$\text{Standard Score} = \frac{\text{Actual Score} - \text{Mean}}{\text{Standard Deviation}}$$

in Symbols.

$$z = \frac{x - \bar{x}}{s}$$

- * A POSITIVE z-score indicates being above the mean
- * A ZERO z-score indicates on the mean
- * A NEGATIVE z-score indicates being below the mean.

Eg Heights of females have a mean of 160 cm and Standard Deviation of 8 cm.

Determine the z-score of a woman 150 cm tall

$$\bar{x} = 160 \quad s = 8 \quad x = 150$$

$$\begin{aligned} z &= \frac{150 - 160}{8} \\ &= \frac{-10}{8} \\ &= -1.25 \end{aligned}$$

Eg Freddie scored 74 in Maths and 63 in English. If $\bar{x} = 60$ and $s = 12$ for Maths and $\bar{x} = 50$ and $s = 8$ for English.
In which subject did Freddie perform better.

Maths

$$z = \frac{74 - 60}{12}$$
$$= 1.17$$

English

$$z = \frac{63 - 50}{8}$$
$$= 1.625$$

English because it is further above the mean.

Note: Always read the 'story' of the question to decide whether a higher or lower z-score is best.

Test Scores - higher better
Race times - lower better.

Questions:

Ex 24 Questions on Work Plan.