Checking

- Spotting incorrect answers in a number of different situations

Keywords

You should know

explanation 1 online

1 In each pair of calculations, one is incorrect. Without using a calculator, identify which one must be the incorrect calculation. Give reasons for your choice.

a **i** $56 + 8 \div 8 = 8$ **ii** $56 + 8 \div 8 = 57$

b **i** $25 - 10 \times 2 = 30$ **ii** $25 - 10 \times 2 = 5$

c **i** $(14.1 - 3.8)^2 = 106.09$ **ii** $(14.1 - 3.8)^2 = 20.09$

d **i** $\frac{27.3 \times 2.9}{9.1} = 8.7$ **ii** $\frac{27.3 \times 2.9}{9.1} = 0.87$

e **i** $\frac{\sqrt{100 - 36}}{4} = 2$ **ii** $\frac{\sqrt{100 - 36}}{4} = 20$

f **i** $(20 - 15)^2 - 10 \div 5 = 3$ **ii** $(20 - 15)^2 - 10 \div 5 = 23$

g **i** $5 \times 4.9^2 = 600.25$ **ii** $5 \times 4.9^2 = 120.05$

h **i** $\frac{52 \div 5^2}{3.8} = 28.46$ **ii** $\frac{52 \div 5^2}{3.8} = 0.547$

2 Without using a calculator, pick out a possible answer to each calculation from the ones given. Give reasons for your choice.

a	58×60	**i** 3480	**ii** 348	**iii** 4080
b	$4.98 \div 0.33$	**i** 1.66	**ii** 15.09	**iii** 0.92
c	$327 \div 1.1$	**i** 297.27	**ii** 29.73	**iii** 327.11
d	1001×2.1	**i** 2001.1	**ii** 2102.1	**iii** 1999.1

3 **a** $\sqrt{x} = 22.5$.

Which of these methods is correct for finding x?

i $x = 2 \times 22.5$ **ii** $x = 22.5^2$ **iii** $x = \sqrt{22.5}$

b $p^2 = 2116$.

Which of these methods is correct for finding p?

i $p = 2116 \div 2$ **ii** $p = 2116^2$ **iii** $p = \sqrt{2116}$

c $(m - 25) \div 5 = 15$.

Which of these methods is correct for finding m?

i $m = 15 \times 5 + 25$ **ii** $m = (15 + 25) \times 5$ **iii** $m = 15 + 5$

4 **a** Ali did a survey of eye colours with the 25 pupils in his class.
He produced this table of results showing the percentage in each category.

Eye Colour	Blue	Brown	Hazel	Green
Percentage	40%	30%	25%	15%

Explain why these results must be incorrect.

b Sarah repeated the survey with the same 25 pupils.
Her results are shown below.

Eye Colour	Blue	Brown	Hazel	Green
Percentage	40%	30%	14%	16%

Explain why her results must be incorrect as well.

5 The mass in kilograms of 10 pupils are given below.

45 38 52 55 51 48 50 49 41 53

The mean mass is calculated as 56 kg. Without calculating the mean, explain why this value cannot possibly be correct.

$$\text{Mean} = \frac{\text{sum of all the values}}{\text{number of values}}$$