

Ratio & Proportion Higher Answers

GCSE Mathematics



Starters

Percentage of an Amount 170% (1)

Direct Proportion $y=kx^2$ $k = \frac{1}{4}$ (1)

$y = 16$ (1)

Ratios and Percentages $\frac{3}{8}$ are red (1)

37.5% (1)

Converting Volume $55\text{m}^3 \times 100^3$ (1)

$55\,000\,000\text{ cm}^3$ (1)

Map Ratios 6:90000 (1)

1:15000 (1)

Original Price $112\% = 392$ (1)

$1\% = \text{£}3.50$ (1)

$100\% = \text{£}350$ (1)

Best Buy 125g cost £0.0088 per gram (1)

200g cost £0.00925 per gram (1)

125g best buy (1)

Main Course

Elephant Populations $40000 \times \frac{11}{12}^{10} = 16756$ (1) (2)

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Buying abroad

Cost of USA guitar = $650 \times 0.88 = \text{£}572$ (1)

$\text{\$}748 + 2.5\% = \text{\$}766.70$ (1)

$\text{£}572 = \text{\$}766.70$ (1)

$\text{£}1 = \text{\$}1.34$ (1)

Volume of Frustum

Biggest cone height 15cm and smallest cone height 10cm (1)

V Big cone = 180π (1)

V small cone = $\frac{160}{3}\pi$ (1)

V frustum = 398cm^3 (1)

Mortgage Payments

Amount Borrowed = $\text{£}231\,000$ (1)

5.1% of $\text{£}231\,000 = \text{£}11781$ a year (1)

20 years interest = $\text{£}235620$ (1)

Total cost = $\text{£}466\,620$ (1)

Density

$1.13 = \frac{220}{\frac{4}{3}\pi r^3}$ (1)

$\frac{4}{3}\pi r^3 = \frac{220}{1.13}$ (1)

$r^3 = \frac{220}{1.13} \div \frac{4}{3}\pi$ (1)

$r = 3.6$ (1)

The Big Race

Section 1 $450 \div 2.5 = 180$ seconds

Section 2 $240 \div 6 = 40$ seconds

Section 3 $300 \div 2.5 = 120$ seconds

Section 4 $510 \div 4 = 127.5$ seconds (1)

Correct graph (1)

Time 467.5 seconds or 7 minutes and 47.5 seconds (1)

Average speed $1500 \div 467.5 = 3.2$ m/s (1)

Dessert

Angles Correct internal and external angle of any regular shape (1)

Show the ratios are not in ratio 7:2 (1)

Speed Not written time as hours but minutes (1)

$66 \div 0.75 = 88$ mph (1)

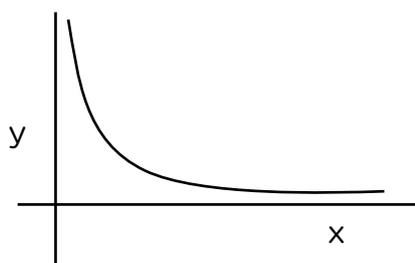
Ratios & Surds $5\sqrt{7} : 3\sqrt{7}$ (1)

$5 : 3$ (1)

Distance Time Graphs Constant Speed would be a straight line (1)

Find gradient of tangent at point for instantaneous speed (1)

Proportion and Graphs (2)



$$y \propto \frac{1}{x^2}$$

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Drinks

Finding the Force $P = \frac{F}{A}$ (1)

$$\frac{600}{2 \times 0.0002} \quad (1)$$

$$P = 1\,500\,000 \text{ Nm}^2 \quad (1)$$

Inverse Proportion $2.5 = \frac{y}{\sqrt{4}}$ (or other x and y values) (1)

$$y = \frac{5}{\sqrt{x}} \quad (1)$$

Sharing the Profit Felicity Janice Sabrina (1)

$$13:16:11$$
$$1 \text{ share} = \text{£}187.50 \quad (1)$$

$$\text{£}2437.50 \quad \text{£}3000 \quad \text{£}2062.50 \quad (1)$$

Car Values $p \times 0.86^3 = 9540.84$ (1)

$$P = 9540.84 \div 0.86^3 \quad (1)$$

$$P = \text{£}15000 \quad (1)$$

Speed of a Cheetah $28 \times 60 \times 60 = 100800\text{m/h}$ (1)

$$100.8\text{km/h} \quad (1)$$

Flying First Class Economy = $845 \div 6.5$ (1)

$$= \text{£}130 \quad (1)$$