

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 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)
	$V \text{ Big cone} = 180\pi$	(1)
	$V \text{ small cone} = \frac{160}{3}\pi$	(1)
	$V \text{ frustum} = 398\text{cm}^3$	(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)

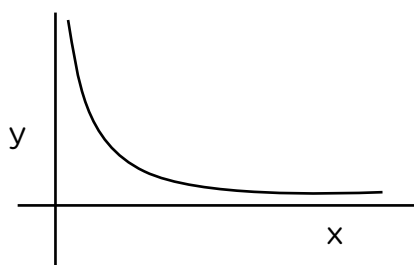
Ratios & Surds $5\sqrt{7} : 3\sqrt{7}$ (1)

$5 : 3$ (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)
	$\frac{600}{2 \times 0.0002}$	(1)
	$P = 1\,500\,000 \text{ Nm}^2$	(1)

Inverse Proportion	$2.5 = \frac{y}{\sqrt{4}}$ (or other x and y values)	(1)
	$y = \frac{5}{\sqrt{x}}$	(1)

Sharing the Profit	Felicity	Janice	Sabrina	(1)
	13:16:11			
	1 share = £187.50			(1)
	£2437.50	£3000	£2062.50	(1)

Car Values	$p \times 0.86^3 = 9540.84$	(1)
	$P = 9540.84 \div 0.86^3$	(1)
	$P = £15000$	(1)

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

Flying First Class	Economy = $845 \div 6.5$	(1)
	= £130	(1)