

WA7MNAC2

Calculating with number

Core + Challenge

Finding a Percentage of a Quantity — Marking Key

I can find a percentage of a quantity mentally, with jottings or with a calculator, and use it to solve problems.

For tutors and parents. Award method marks for correct working even if the final answer is wrong.

Marks summary

Section A Fluency: 16 Section B Core: 22 Section C Reasoning: 9 Section D Challenge: 11 **Total: 58**

Fluency: 1 mark each; accept an equivalent unsimplified answer for half credit at tutor's discretion.

A Fluency *answers and working*

/ 16 marks

Q	Answer	Working
1	57	$570 \div 10 = 57$
2	28.5	$10\% = 57$, so $5\% = 28.5$
3	171	$10\% = 57$, so $30\% = 3 \times 57 = 171$
4	15	$\frac{1}{4}$ of $60 = 15$
5	43	half of $86 = 43$
6	9	$10\% = 4.5$, so $20\% = 9$
7	90	$\frac{3}{4}$ of $120 = 90$
8	3.5	$350 \div 100 = 3.5$
9	12	$10\% = 8$, $5\% = 4$, so $15\% = 12$
10	8	$\frac{1}{8}$ of $64 = 8$
11	14	$10\% = 3.5$, so $40\% = 14$
12	45	$100\% + 50\% = 30 + 15 = 45$
13	91	$10\% = 26$, $5\% = 13$: $3 \times 26 + 13 = 91$
14	10	$1\% = 4$, so $2.5\% = 10$
15	\$1.56	$0.17 \times 9.20 = 1.564 \approx \$1.56$
16	6	$1\% = 12$, so $0.5\% = 6$

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B

Core *answers, working and marks*

/ 22 marks

Q	Answer	Working / sample response	Marks
1	(a) \$17 (b) \$68	10% = \$8.50, so 20% = \$17; $85 - 17 = 68$ <i>1 mark each</i>	2
2	\$273.90	10% of 249 = 24.90; $249 + 24.90 = 273.90$ <i>1 mark: \$24.90</i> <i>1 mark: \$273.90</i>	2
3	462	Boys = 55%; 10% = 84, 5% = 42: $5 \times 84 + 42 = 462$ <i>1 mark: 55% or 378 girls</i> <i>1 mark: 462</i>	2
4	\$9.60	10% = 6.40, 5% = 3.20; $6.40 + 3.20 = 9.60$ <i>1 mark: working</i> <i>1 mark: \$9.60</i>	2
5	Store B, by \$6	A: 12% of 1200 = 144 → \$1056. B: $1200 - 150 = \$1050$. $1056 - 1050 = 6$ <i>1 mark: store A price</i> <i>1 mark: comparison</i> <i>1 mark: B by \$6</i>	3
6	975 g	30% of 750 = 225; $750 + 225 = 975$ (or 1.3×750) <i>1 mark: 225 g</i> <i>1 mark: 975 g</i>	2
7	\$27 900	1% = 6200; $4.5 \times 6200 = 27\,900$ <i>1 mark: working</i> <i>1 mark: \$27 900</i>	2
8	7	25% of 28 = 7, 50% of 28 = 14; $28 - 21 = 7$ <i>1 mark: working</i> <i>1 mark: 7</i>	2
9	\$84	1% = 24; $3.5 \times 24 = 84$ <i>1 mark: working</i> <i>1 mark: \$84</i>	2
10	\$137.80	Spent: 47%, so 53% is left. 53% of 260 = 137.80 <i>1 mark: 47% or \$122.20</i> <i>1 mark: method</i> <i>1 mark: \$137.80</i>	3

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C

Reasoning *sample answers and marking criteria*

/ 9 marks

Q	Answer	Working / sample response	Marks
1	91	$10\% = 26$, so $30\% = 78$; $5\% = 13$; $78 + 13 = 91$. <i>1 mark: strategy</i> <i>1 mark: 91</i>	2
2	Yes (both 10); 8% of 25 = 2	Both mean $\frac{20}{100} \times 50 = \frac{50}{100} \times 20 = \frac{1000}{100}$. Order doesn't matter when multiplying. $8\% \text{ of } 25 = 25\% \text{ of } 8 = 2$ <i>1 mark: yes</i> <i>1 mark: explanation</i> <i>1 mark: 2</i>	3
3	25% of the price remains	The second 50% is taken off the new, smaller price: half of a half = $\frac{1}{4}$ of the original, so 25% remains. <i>1 mark: second discount on new price</i> <i>1 mark: 25% remains</i>	2
4	About \$80	$19\% \approx 20\%$ and $\$412 \approx \$400$; $20\% \text{ of } 400 = 80$. (Exact \$78.28) <i>1 mark: sensible rounding</i> <i>1 mark: $\approx \\$80$</i>	2

D

Challenge *solutions and marking criteria*

/ 11 marks

Q	Answer	Working / sample response	Marks
1	(a) \$198 (b) the 10% decrease is taken from a larger amount	$200 \times 1.1 = 220$; $220 \times 0.9 = 198$ $10\% \text{ of } 220 \text{ is } \$22$, which is more than the \$20 added. <i>1 mark: \$220</i> <i>1 mark: \$198</i> <i>1 mark: explanation</i>	3
2	63	$10\% = 14$, so $45\% = 4.5 \times 14 = 63$ <i>1 mark: $10\% = 14$</i> <i>1 mark: 63</i>	2
3	\$40 – back to the start	$40 \times 1.25 = 50$; $50 \times 0.8 = 40$ Increasing by 25% multiplies by $\frac{5}{4}$; taking 20% off multiplies by $\frac{4}{5}$; $\frac{5}{4} \times \frac{4}{5} = 1$. <i>1 mark: \$50</i> <i>1 mark: \$40</i> <i>1 mark: explanation</i>	3
4	60	$25\% \text{ of } 60\% = 15\% \text{ of the class}$ $15\% = 9$, so $5\% = 3$ and $100\% = 60$ <i>1 mark: 15%</i> <i>1 mark: method</i> <i>1 mark: 60</i>	3