

Ratio & Proportion: Hard Practice Paper 5 Answers

Q#	Answer	Explanation
1	B	Make B the same in both ratios. $A : B = 3 : 5 = 6 : 10$ and $B : C = 2 : 7 = 10 : 35$, so $A : B : C = 6 : 10 : 35$.
2	C	Let the numbers be $4n$ and $7n$. Then $8(4n + 6) = 5(7n + 6)$, so $32n + 48 = 35n + 30$ and $n = 6$. The smaller number is $4 \times 6 = 24$, and checking: $30 : 48 = 5 : 8$.
3	B	There are $5 + 6 + 9 = 20$ parts, so one part is $\pounds 480 \div 20 = \pounds 24$. The smallest share is 5 parts, which is $5 \times \pounds 24 = \pounds 120$.
4	C	The job takes $9 \times 20 = 180$ builder-days, so to finish in 12 days you need $180 \div 12 = 15$ builders.
5	D	If one part is n , the sides are $5n$ and $3n$ and the area is $15n^2 = 240$, so $n^2 = 16$ and $n = 4$. The sides are 20 cm and 12 cm, so the perimeter is $2 \times (20 + 12) = 64$ cm.
6	D	The real patio is 6 m by 8 m, so its area is $6 \times 8 = 48 \text{ m}^2$. Each side is doubled, so the real area is $2 \times 2 = 4$ times the area on the plan.
7	C	One part is $12 \div 6 = 2$ litres, so there are 2 litres of concentrate and 10 litres of water. For a ratio of $1 : 7$ the water must be $7 \times 2 = 14$ litres, so $14 - 10 = 4$ litres are added.
8	D	The train covers $3 \div 2 = 1.5$ km each minute, so 45 km takes $45 \div 1.5 = 30$ minutes.
9	B	45 cars is 5 lots of the 9-part, so there are $5 \times 2 = 10$ vans. After 5 more arrive there are 15 vans, so the ratio is $45 : 15 = 3 : 1$.
10	D	The difference between Chris and Amy is $8 - 3 = 5$ parts, so 5 parts = $\pounds 60$ and one part = $\pounds 12$. The total is 16 parts, which is $16 \times \pounds 12 = \pounds 192$.
11	B	The 2 litre bottle costs $350 \div 2 = \pounds 1.75$ per litre and the 5 litre bottle costs $825 \div 5 = \pounds 1.65$ per litre, so the saving is 10p per litre.
12	D	Volume depends on three dimensions, so the volumes are in the ratio $1^3 : 3^3 = 1 : 27$.

13	C	The journey is $4 \times 45 = 180$ km, so to cover it in 3 hours the speed must be $180 \div 3 = 60$ km/h.
14	B	If 40% are girls then 60% are boys, so the ratio of boys to girls is 60 : 40. Dividing both parts by 20 gives 3 : 2.
15	E	If Cal has 1 part then Bob has 3 parts and Ann has 6 parts, making 10 parts altogether. One part is $\pounds 700 \div 10 = \pounds 70$, so Ann receives $6 \times \pounds 70 = \pounds 420$.

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