

Ratio & Proportion: Hard Practice Paper 8 Answers

Q#	Answer	Explanation
1	E	The two smaller numbers make $3 + 4 = 7$ parts and the largest is 8 parts, so the largest is one part more than the other two together. That one part must be 20, so the smallest number is $3 \times 20 = 60$.
2	D	Change each price into pounds: $390 \div 1.30 = 300$ pounds and $46,400 \div 145 = 320$ pounds. Against Britain's £310, the lowest is £300, in America.
3	B	Perimeters grow in the same ratio as the lengths, so the lengths are in the ratio 3 : 5 and the areas in the ratio 9 : 25. One ninth of the smaller area is $27 \div 9 = 3$, so the larger area is $25 \times 3 = 75$ square centimetres.
4	C	Altogether she rides $2 + 3 = 5$ kilometres in $8 + 12 = 20$ minutes. An hour holds three lots of 20 minutes, so in an hour she would ride $5 \times 3 = 15$ kilometres.
5	A	Make B match in both ratios by writing them as 4 : 6 and 6 : 15, so A : B : C is 4 : 6 : 15. That is $4 + 6 + 15 = 25$ parts, so one part is $720 \div 25 = 28.8$ pounds and C receives $15 \times 28.80 = 432$ pounds.
6	E	The line is straight through the origin, and 100 units cost £15, so one unit costs $15 \div 100 = 0.15$ pounds. Then 350 units cost $0.15 \times 350 = 52.5$ pounds.
7	C	The job is worth $10 \times 12 = 120$ worker-days. The first stage uses $10 \times 3 = 30$ of them, leaving 90 for 15 workers, which takes $90 \div 15 = 6$ days. Altogether that is $3 + 6 = 9$ days.
8	B	Try A as 5 and B as 3: then $3 \times 5 = 15$ and $5 \times 3 = 15$, so the two sides balance. A must be the larger of the two, because it is being multiplied by the smaller number.
9	E	The drink is 4 parts, so one part is $20 \div 4 = 5$ litres, giving 15 litres of water and 5 of juice. The water does not change, so for a ratio of 3 : 2 the juice must reach 10 litres, and $10 - 5 = 5$ litres are added.

10	A	Work each one out for 4 days: A charges $26 \times 4 = 104$ pounds, B charges $40 + 60 = 100$, C charges £95 and D charges for three days only, $30 \times 3 = 90$. The cheapest is Firm D at £90.
11	D	For every £5 the price was, it is now £4, so £1 in every £5 has come off. As a fraction that is $\frac{1}{5}$, and $100 \div 5 = 20$, so the price has fallen by 20 per cent.
12	B	Filling 4 tanks takes $6 \times 3 = 18$ tap-hours, so one tank takes $18 \div 4 = 4.5$ tap-hours. Six tanks therefore take $6 \times 4.5 = 27$ tap-hours, and with four taps that is $27 \div 4 = 6.75$ hours, or 6 hours 45 minutes.
13	C	The football sector is 144 out of the full turn of 360° , and $144 \div 360 = 0.4$ of the chart. If 0.4 of the pupils is 20, then all of them number $20 \div 0.4 = 50$.
14	D	The garden is 5 squares by 3 squares, so it is really 15 m by 9 m. Its perimeter is $15 + 9 + 15 + 9 = 48$ metres.
15	A	The two managers split their money into $3 + 2 = 5$ parts, and £600 is 2 of them, so one part is $600 \div 2 = 300$ and the larger partner's share is $5 \times 300 = 1500$ pounds. That share is 5 of the 8 parts of the profit, so one part is $1,500 \div 5 = 300$ and the profit is $8 \times 300 = 2400$ pounds.