Ratio & Proportion: Hard Practice Paper 2 Answers

Q#	Answer	Explanation
1	B	Make B the same in both ratios. A : B = 3 : 4 = 9 : 12 and B : C = 6 : 7 = 12 : 14, so A : B : C = 9 : 12 : 14 and A : C = 9 : 14.
2	D	Let the numbers be 3n and 5n. Then 8(3n + 4) = 5(5n + 4), so 24n + 32 = 25n + 20 and n = 12. The larger number is 5 × 12 = 60, and checking: 40 : 64 = 5 : 8.
3	C	The job takes 8 × 6 = 48 pump-hours, so to finish in 4 hours you need 48 ÷ 4 = 12 pumps.
4	D	There are 2 + 5 + 7 = 14 parts, so one part is £1400 ÷ 14 = £100. The largest share is 7 parts, which is 7 × £100 = £700.
5	C	Each person needs 750 ÷ 6 = 125 g, so 15 people need 15 × 125 = 1875 g.
6	B	Three kilograms of the mixture cost (2 × £6) + (1 × £9) = £21, so one kilogram costs £21 ÷ 3 = £7.00.
7	C	15 km is 1 500 000 cm, and dividing by 50 000 gives 1 500 000 ÷ 50 000 = 30 cm.
8	C	Let one part be n, so there are 7n boys and 5n girls. Then 5n + 24 = 7n, giving 2n = 24 and n = 12. The number of boys is 7 × 12 = 84.
9	D	One machine makes 600 ÷ (4 × 5) = 30 items an hour. Six machines working 8 hours make 6 × 8 × 30 = 1440 items.
10	D	The difference between Chris and Amy is 6 − 4 = 2 parts, so 2 parts = 12 and one part = 6. The total is 15 parts, which is 15 × 6 = 90 sweets.
11	C	If 3/8 are boys then 5/8 are girls, so for every 3 boys there are 5 girls, giving 3 : 5.
12	B	One part is 5 ÷ 10 = 0.5 kg, so there is 3.5 kg of copper and 1.5 kg of tin. The copper stays as 7 parts of 0.5 kg, so the tin must become 5 × 0.5 = 2.5 kg, meaning 2.5 − 1.5 = 1 kg is added.

13	D	When lengths are in the ratio 2 : 5, areas are in the ratio $2^2 : 5^2 = 4 : 25$. Since $12 \div 4 = 3$, the larger area is $25 \times 3 = 75$ cm².
14	C	The total distance is $12 + (2 \times 18) = 48$ km in 3 hours, so the average speed is $48 \div 3 = 16$ km/h.
15	C	Divide the dollars by the exchange rate: $96 \div 1.28 = £75$.