Problem Solving & Word Problems: Hard Practice Paper 6 Answers

Q#	Answer	Explanation
1	B	Bought separately the tickets cost 2 × 9 = 18 pounds for the adults and 4 × 5 = 20 for the children, giving 18 + 20 = 38 pounds. A family ticket covers everyone but one child, so 26 + 5 = 31 pounds is cheaper.
2	C	The sale price is nine tenths of the raised price, so the raised price was 108 ÷ 0.9 = 120 pounds. That in turn was 1.2 times the original, so the original was 120 ÷ 1.2 = 100 pounds.
3	A	In one hour pipe A fills a sixth of the tank and pipe B a third, and 1/6 + 1/3 = 1/2 of the tank. Filling half a tank each hour means the whole tank takes 2 hours.
4	D	Five years ago the gap between them was still 28 years, and the mother was 5 times as old, so the gap was 4 of the daughter's ages. The daughter was then 28 ÷ 4 = 7, so she is now 7 + 5 = 12.
5	B	From 09:12 to 11:00 is 1 hour and 48 minutes, so the train arrives at 11:00. The change and the bus take 20 + 35 = 55 minutes more, and from 11:00 to 11:55 is 55 minutes.
6	D	The blue share is 2 parts more than the red share, so 2 parts are worth 24 and one part is 24 ÷ 2 = 12 counters. The whole bag is 8 parts, which is 8 × 12 = 96 counters.
7	B	Since 5 like neither, 40 − 5 = 35 people like at least one drink. Counting the two lists separately gives 25 + 18 = 43, which is 43 − 35 = 8 too many, and that overcount is the people counted twice.
8	E	The first stretch takes 60 ÷ 60 = 1 hour and the second takes 60 ÷ 30 = 2 hours, so the journey takes 1 + 2 = 3 hours for 120 km. The average speed is 120 ÷ 3 = 40 km/h, not the halfway point between the two speeds.
9	D	Each of the 8 people shakes hands with the other 7, which counts 8 × 7 = 56 handshakes. Every handshake has been counted from both sides, so the real number is 56 ÷ 2 = 28.

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10	C	The four bars come to 24 + 28 + 32 + 26 = 110 sales. A mean of 30 over five weeks needs a total of 5 × 30 = 150, so week 5 must bring in 150 − 110 = 40.
11	A	The path adds 1.5 m at both ends, so the outside rectangle is 8 + 3 = 11 m by 5 + 3 = 8 m, an area of 11 × 8 = 88 square metres. The pool covers 8 × 5 = 40, so the path is 88 − 40 = 48 square metres, costing 48 × 22 = 1056 pounds.
12	E	After the first day three quarters is left. Losing a third of that leaves two thirds of it, and 2/3 × 3/4 = 1/2 of the tank. The two fractions cannot simply be added, because the second is a fraction of a smaller amount.
13	E	The two shares are 5 + 7 = 12 parts altogether, so one part is 96 ÷ 12 = 8. The shares differ by 7 − 5 = 2 parts, which is 2 × 8 = 16.
14	A	A quarter of 64 is 16, so Shop A charges 64 − 16 = 48 pounds. Shop B charges 48 − 5 = 43 pounds, which is 48 − 43 = 5 pounds cheaper.
15	C	From 08:00 to 13:00 is 5 hours. The clock gains 3 minutes in each of them, which is 5 × 3 = 15 minutes too many, so it shows 13:15.

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