Problem Solving & Word Problems: Hard Practice Paper 7 Answers

Q#	Answer	Explanation
1	E	The cyclists number 8 + 16 = 24 out of 120 pupils. Working out the fraction, 24 ÷ 120 = 0.2, which is 20 per cent.
2	C	Compare the cost of 100 g in each box: 4.50 ÷ 7.5 = 0.6 pounds, then 6.60 ÷ 12 = 0.55 and 11.60 ÷ 20 = 0.58. At 55p per 100 g the medium box wins, so the biggest box is not always the cheapest.
3	B	Both orders include three teas, so the difference in price is caused by the two extra coffees. Since 14.50 − 9.50 = 5 pounds buys 2 coffees, one coffee costs 5 ÷ 2 = 2.5 pounds.
4	D	The whole job is worth 5 × 12 = 60 days of work by one person. The first stage uses up 5 × 4 = 20 of those, leaving 60 − 20 = 40. With 8 workers on the job that takes 40 ÷ 8 = 5 more days.
5	B	Ten per cent of 8,000 is 800, so after one year there are 8,000 + 800 = 8800 people. Ten per cent of 8,800 is 880, so after the second year there are 8,800 + 880 = 9680.
6	A	At first she has 3 × 4 × 2 = 24 outfits, and with five tops she has 3 × 5 × 2 = 30. The gain is 30 − 24 = 6, which is one outfit for each skirt and shoe pairing.
7	C	Taxi B starts 6 − 3 = 3 pounds dearer, but it charges 1.50 − 1.00 = 0.5 pounds less for each kilometre. It takes 3 ÷ 0.5 = 6 kilometres to close that gap, and at 6 km both charge £12.
8	A	The eight numbers total 8 × 15 = 120. Taking out 9 + 11 = 20 and putting in 21 + 23 = 44 gives a new total of 120 − 20 + 44 = 144, so the new mean is 144 ÷ 8 = 18.
9	D	The four days shown carry 3 + 2.5 + 4 + 2 = 11.5 symbols, which stands for 11.5 × 8 = 92 books. That leaves 100 − 92 = 8 books for Friday, and 8 ÷ 8 = 1 symbol.

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10	D	Girls are three fifths of the class and boys two fifths, so there is one fifth more girls than boys. The 4 new boys close that gap, so a fifth of the class is 4 pupils and the class was 5 × 4 = 20.
11	C	The shop sells 40 − 5 = 35 shirts, taking 35 × 18 = 630 pounds. The shirts all had to be paid for, so the profit is 630 − 480 = 150 pounds.
12	E	In London time the flight lands 8 hours 45 minutes after take-off, and from 14:20 to 23:05 is 8 hours and 45 minutes. Local clocks are 3 hours further on, so they read 02:05 the next morning.
13	A	The highest is Dell at 7°C and the lowest is Ayton at −8°C. Counting up from −8 to zero is 8 degrees, and zero to 7 is another 7, so the difference is 8 + 7 = 15 degrees.
14	B	The middle number is the mean of the five, which is 105 ÷ 5 = 21. Counting two places up from the middle gives the largest, 21 + 2 = 23, and the five numbers are 19, 20, 21, 22 and 23.
15	E	One length and one width together are half the perimeter, which is 96 ÷ 2 = 48 m. As the length is twice the width, those 48 m are 3 widths, so the width is 48 ÷ 3 = 16 m and the length 32 m. The area is 16 × 32 = 512 square metres.

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