Rounding & Estimating: Hard Practice Paper 6 Answers

Q#	Answer	Explanation
1	C	Each side could be up to half a centimetre longer than it says, so the sides could reach 8.5 cm and 5.5 cm. The perimeter is then 8.5 + 5.5 + 8.5 + 5.5 = 28 centimetres.
2	D	To round to 3,000 a number must be at least 2,500 and less than 3,500. The value 3,501 is above that band and would round up to 4,000.
3	B	He rounded the number being shared up and the number of groups down, and both changes make the answer come out larger. So the true answer must be less than 100, and in fact it is about 97.
4	D	Round each number to one significant figure: about 0.04 times about 5,000. Since 0.04 × 5,000 = 200, the answer is roughly 200.
5	B	Each person could weigh up to 55.5 kg, half a kilogram more than stated. Even at that greatest weight the total is 9 × 55.5 = 499.5 kilograms, which is still under the limit.
6	C	Rounding to 4,560 to the nearest ten means the number runs from 4,555 to 4,564, which is the tightest of the three conditions. Every number in that range also rounds to 4,600 and to 5,000, so the smallest is 4,555.
7	A	Round the prices to £200 and £300, so the rise is about £100 on a starting price of about £200. Half of 200 is 100, so the increase is roughly 50 per cent.
8	D	The three significant figures here are the 5, 0 and 0, so the number is being rounded to the nearest 0.0001. Half of that step is 0.00005, so the smallest value is 0.05 − 0.00005 = 0.04995.
9	A	Round to easy numbers: about 10,000 people giving about £20 each. Since 10,000 × 20 = 200000, the true total is about £200,000, which is ten times smaller than the report claims.

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10	E	The difference is largest when the first length is as big as possible and the second as small as possible, that is 12.65 cm and 8.25 cm. Then the difference is 12.65 − 8.25 = 4.4 centimetres.
11	A	The square numbers on either side are 12 × 12 = 144 and 13 × 13 = 169. As 150 is only 6 above 144 but 19 below 169, the square root is nearer to 12.
12	B	Rounding each bar to the nearest ten gives about 190, 240, 320 and 160, which total 190 + 240 + 320 + 160 = 910 pounds. To the nearest hundred that is £900.
13	E	Rounding 31 to the nearest ten gives 30 and rounding 196 to the nearest hundred gives 200, which matches the estimate. The others would round to 3 × 200, 30 × 20, 300 × 200 and 0.3 × 200 instead.
14	E	Round the leak to 4 litres an hour. A week holds 24 × 7 = 168 hours, or about 170, so the waste is roughly 4 × 170 = 680 litres, which is about 700.
15	C	Round to friendly numbers: 19.8% is nearly 20%, and 4,050 is nearly 4,000. A fifth of 4,000 is 4,000 ÷ 5 = 800, so the answer is about 800.

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