Data Handling & Probability: Hard Practice Paper 7 Answers

Q#	Answer	Explanation
1	C	The Year 6 row must add up to 45, and the two known figures come to 12 + 11 = 23, so the missing one is 45 − 23 = 22. Checking down the Walk column: 18 + 22 = 40, which matches the total.
2	A	The pupil is chosen from the whole table, so there are 85 to pick from. Only the 9 in the Year 5 row and Bus column meet both conditions, so the probability is 9/85.
3	A	The first counter is red with probability 5 out of 8. After it is kept there are 4 reds among 7 counters, so the second is red with probability 4 out of 7. Multiplying gives 5 × 4 = 20 over 8 × 7 = 56, and 20 out of 56 cancels to 5/14.
4	B	There are 6 × 6 = 36 equally likely pairs of scores. The pairs that match are double 1 up to double 6, which is 6 of them, so the probability is 6 out of 36, which cancels to 1/6.
5	D	It is easier to work out the chance of no red at all. Each spin misses red with probability 3 out of 4, so two spins miss with probability 3 × 3 = 9 over 4 × 4 = 16. At least one red is everything else, which is 1 − 9/16 = 7/16.
6	D	Multiply the number of flips by the probability of a head: 600 × 0.45 = 270 heads. A fair coin would be expected to give 300, so this coin favours tails.
7	E	If 8 play neither then 50 − 8 = 42 play at least one sport. Adding the two figures gives 32 + 25 = 57, which is 57 − 42 = 15 too many, and that overcount is exactly the people counted twice. So 15 play both.
8	C	Of the 32 footballers, 15 also play cricket, so 32 − 15 = 17 play football only. The person is chosen from all 50, so the probability is 17/50.
9	C	If 3/8 are red then the other 5/8 are blue, and those 5/8 amount to 15 counters. One eighth is therefore 15 ÷ 5 = 3 counters, so the whole bag holds 3 × 8 = 24.

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10	B	A fair dice shows a 6 on one roll in six, so in 60 rolls you would expect 60 ÷ 6 = 10 sixes. The dice actually gave 15, which is 15 − 10 = 5 more than expected.
11	C	There are 4 × 4 = 16 equally likely pairs. The pairs adding to 5 are 1 and 4, 2 and 3, 3 and 2, and 4 and 1, which is 4 of them. So the probability is 4 out of 16, which cancels to 1/4.
12	D	Think of the counters as split into three equal shares, two red for every one blue, since red is twice as likely. Red therefore takes 2 of the 3 shares, so the probability is 2/3, and blue is 1/3. Together they make 1, as they must.
13	C	The pupil is known to come by car, so the choice is only from that column, which holds 24 pupils rather than 85. Of those, 13 are in Year 5, so the probability is 13/24.
14	B	The coin gives a head with probability 1/2. Only 5 and 6 are greater than 4, so the dice does that with probability 2 out of 6, which is 1/3. The two do not affect each other, so multiply: 1/2 × 1/3 = 1/6.
15	C	In the sample 14 out of 40 walk, which is 14 ÷ 40 = 0.35 of them. Applying that share to the whole school gives 600 × 0.35 = 210 pupils.

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