Data Handling & Probability: Hard Practice Paper 2 Answers

Q#	Answer	Explanation
1	B	The four months total 120 + 150 + 90 + 240 = 600 bicycles, and February sold 150. As a decimal that is 150 ÷ 600 = 0.25, which is 25%.
2	D	The four bars total 120 + 150 + 90 + 240 = 600 bicycles. Over four months the mean is 600 ÷ 4 = 150.
3	E	April sold 240, and 25% of 240 is 240 ÷ 4 = 60. May sold that much more, so 240 + 60 = 300 bicycles.
4	A	The first counter is green with probability 4/10. Only 3 greens are then left among 9 counters, so the second is green with probability 3/9. Multiplying gives 4/10 × 3/9 = 2/15.
5	B	Five children with a mean age of 9 have ages adding to 5 × 9 = 45 years. Adding the new child gives 45 + 15 = 60 years, and over six children the mean is 60 ÷ 6 = 10.
6	A	One eighth of the pupils is 240 ÷ 8 = 30, so three eighths is 30 × 3 = 90 pupils.
7	C	The whole 360° stands for 240 pupils, so each pupil takes 360 ÷ 240 = 1.5°. The football sector is therefore 108 ÷ 1.5 = 72 pupils.
8	E	The five values add to 4 + 5 + 5 + 6 + 40 = 60, so the mean is 60 ÷ 5 = 12. In order the middle value is 5, so the median is 5. The mean is bigger by 12 − 5 = 7, because the single very large value pulls the mean upwards.
9	C	The Year 5 row must add up to its total of 30, and 14 pupils had a packed lunch, so the missing number is 30 − 14 = 16.
10	B	The Year 6 packed lunch cell holds 12 pupils out of the 58 in the table. That is 12 out of 58, and dividing both numbers by 2 gives 6/29.

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11	D	The whole class measures 30 × 142 = 4260 cm and the boys measure 12 × 145 = 1740 cm, so the girls measure 4260 − 1740 = 2520 cm. Shared between 18 girls that is 2520 ÷ 18 = 140 cm.
12	C	There are 6 × 6 = 36 equally likely pairs. A total of 10 comes from 4 and 6, from 5 and 5, and from 6 and 4, which is 3 pairs, so the probability is 3 out of 36, which simplifies to 1/12.
13	E	With 26 pupils the median lies between the 13th and 14th in order. Sizes 3 and 4 account for 4 + 7 = 11 pupils, and the next 8 pupils all wear size 5, taking the count to 11 + 8 = 19, so the 13th and 14th both wear size 5.
14	D	Adding the two groups gives 30 + 24 = 54, but that counts the 10 who do both twice, so 54 − 10 = 44 people do at least one. The rest do neither: 50 − 44 = 6.
15	A	A fair dice lands on a 6 about one time in six, so in 150 rolls you would expect 150 ÷ 6 = 25 sixes. The dice gave 40 − 25 = 15 more than that.

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