Finding Expected Values from Probability

(a)

The table shows the probabilities that a biased dice will land on each of the numbers from 1 to 6. Yuri rolls the dice 300 times. Estimate the number of times it will land on a 4.

Number	1	2	3	4	5	6
Probability	0.1	0.3	0.15	0.15	0.2	0.1

45

(b)

The table shows the probabilities that a biased four-sided spinner will land on each of the letters from A to D. Jo spins the spinner 200 times. Estimate the number of times it will land on B.

Letter	A	B	C	D
Probability	0.23	0.21	0.36	0.2

42

(c)

The table shows the probabilities that a biased four-sided dice will land on each of the numbers from 1 to 4. The probability of it landing on a 2 is the same as it landing on a 3. Mohid rolls the dice 600 times. Estimate the number of times it will land on a 1 or a 3.

Number	1	2	3	4
Probability	0.32	0.2	0.2	0.28

312

(d)

The table shows the probabilities that a biased five-sided spinner will land on each of the numbers from 1 to 5. The probability that the spinner lands on a 4 is twice the probability that it lands on a 5. Suzy spins the spinner 500 times. Estimate the number of times it will land on a 3 or a 4.

Number	1	2	3	4	5
Probability	0.2	0.16	0.19	0.3	0.15

245

(e)

The table shows the probabilities that a biased dice will land on each of the numbers from 1 to 6. The probabilities the the dice will land on a 2, 3 or 4 are in the ratio 5 : 3 : 4. Misbah rolls the dice 1200 times. Estimate the number of times it will land on a prime number.

Number	1	2	3	4	5	6
Probability	0.14	0.2	0.12	0.16	0.25	0.13

684

(f)

The table shows the probabilities that a biased four-sided spinner will land on each of the letters from A to D. The probability that the spinner lands on B is 30% more than the probability it lands on A. Omar spins the spinner 400 times. Estimate the number of times it will land on B or C.

Letter	A	B	C	D
Probability	0.25	0.325	0.2	0.225

210