

Grade 7 - Probability and Probability Models - Answer Key

Common Core 7.SP.C.5, 7.SP.C.6, 7.SP.C.7 · maths-pdf.fr/en/

Use this answer key to check your work on the probability models worksheet. Every solution shows the steps, and the final answer appears in bold. If your answer is different, compare each step and look for the first place where the work changes.

Grade 7 · Common Core State Standards: **7.SP.C.5, 7.SP.C.6, 7.SP.C.7**

Exercise 1 - Impossible event

No face shows 7, so there are 0 favorable outcomes.

$$P = 0 \div 6 = 0$$

0; impossible

Exercise 2 - One outcome

1 favorable outcome out of 6.

$$\frac{1}{6}$$

Exercise 3 - Even number

Even faces: 2, 4, 6, which is 3 outcomes out of 6.

$$\frac{3}{6} = \frac{1}{2}$$

$$\frac{1}{2}$$

Exercise 4 - Prime number

Primes: 2, 3, 5, which is 3 outcomes of 6.

$$\frac{3}{6} = \frac{1}{2}$$

$$\frac{1}{2}$$

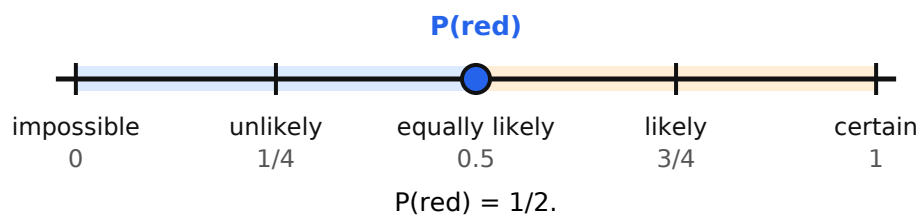
Exercise 5 - Marble bag

Total: $5+3+2=10$.

$$P(\text{red}) = \frac{5}{10} = \frac{1}{2}.$$

$$P(\text{not red}) = 1 - \frac{1}{2} = \frac{1}{2}$$

$$\frac{1}{2} \text{ and } \frac{1}{2}$$



Exercise 6 - Spinner

$$\frac{3}{10}$$

$$\frac{3}{10}$$

Exercise 7 - Letter cards

Vowels: A, E, A, I, which is 4 cards out of 11.

$$\frac{4}{11}$$

Exercise 8 - Relative frequency

$$\frac{38}{60} = \frac{19}{30} \approx 0.63.$$

The theoretical probability is 0.5; with 60 tosses a difference is expected.

$$\frac{19}{30} \approx 0.63$$

Exercise 9 - Predict rainy days

$$0.35 \times 20 = 7$$

About 7 days

Exercise 10 - Spin results

$$\frac{18}{50} = 0.36, \frac{12}{50} = 0.24, \frac{20}{50} = 0.40.$$

$$\text{Check: } 0.36 + 0.24 + 0.40 = 1$$

0.36, 0.24, 0.40

Color	Count	Relative frequency
Red	18	0.36
Blue	12	0.24
Green	20	0.40

Relative frequencies.

Exercise 11 - Missing probability

The probabilities add up to 1.

$$1 - 0.4 - 0.3 = 0.3$$

0.3

Exercise 12 - Expected rolls

$$\frac{1}{6} \times 120 = 20$$

About 20 times

Exercise 13 - Complement

$$1 - 0.35 = 0.65$$

0.65

Exercise 14 - Probability model

Common denominator 12: $\frac{2}{12} + \frac{3}{12} + \frac{4}{12} = \frac{9}{12}$.

$$x = 1 - \frac{9}{12} = \frac{3}{12} = \frac{1}{4}$$

$$\frac{1}{4}$$

Outcome	Probability
1	1/6
2	1/4
3	1/3
4	1/4

The model adds up to 1.

Exercise 15 - Snow days

$$0.15 \times 60 = 9$$

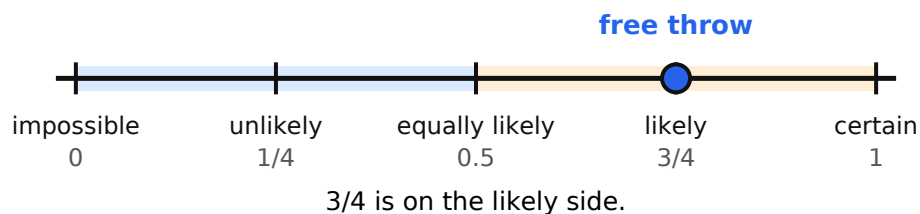
About 9 days; unlikely on any given day

Exercise 16 - Free throws

$$\frac{36}{48} = \frac{3}{4}$$

$$\frac{3}{4} \times 20 = 15$$

About 15



Exercise 17 - Raffle

$$\frac{4}{200} = \frac{1}{50} = 0.02 = 2\%$$

$$\frac{1}{50}, \text{ or } 2\%$$

Exercise 18 - Lunch choice

$$\text{Relative frequency: } \frac{14}{40} = 0.35.$$

$$0.35 \times 100 = 35$$

About 35 greens

Exercise 19 - Die experiment

$$\frac{9}{40} = 0.225 \text{ compared with } \frac{1}{6} \approx 0.167.$$

The experiment gave 5 more often than the theory predicts, which can happen by chance.

$$\frac{9}{40} = 0.225 \text{ versus } \frac{1}{6} \approx 0.167$$

Exercise 20 - Adding marbles

$$\text{New total: } 10 + 2 = 12. \text{ Red: } 5 + 2 = 7.$$

$$P(\text{red}) = \frac{7}{12} \approx 0.58, \text{ which is greater than } \frac{1}{2}.$$

$$\frac{7}{12}, \text{ greater than before}$$