Finding Experimental Probability

Experimental Probability of an Event	The ratio of the number of times the event occurs to the total number of trials	$P(event) = \frac{\text{\# of times the event occurs}}{\text{total \# of trials}}$

Examples

Rhonda has a bag containing red, green, yellow and blue marbles. She draws a marble from the bag and replaces it before drawing another. She has drawn 25 marbles and recorded 6 red, 8 green, 5 white, 4 yellow and 2 blue marbles.

Find the experimental probability of each outcome.

1. She picked a red marble

   Answer: $P = \frac{6\ red}{25\ marbles\ drawn} = 0.24 = 24\%$

2. She picked a green marble or a blue marble

   Answer: $P = \frac{8\ green}{25\ marbles\ drawn} + \frac{2\ blue}{25\ marbles\ drawn} = \frac{10}{25} = \frac{2}{5} = 0.4 = 40\%$

3. She did not pick a white marble

   Answer: $P = \frac{6\ red + 8\ green + 4\ yellow + 2\ blue}{25\ marbles\ drawn} = \frac{20}{25} = \frac{4}{5} = 0.8 = 80\%$

Try These

Two coins are flipped at the same time for 10 tosses. The results are shown in the table.

Trial	1	2	3	4	5	6	7	8	9	10
Coin 1	H	T	H	H	T	H	T	H	H	T
Coin 2	H	H	T	H	T	T	H	T	H	H

Use the data from the table above to find the experimental probability of each outcome. Write your answer as a fraction (in simplest form), a decimal and a percent.

4. Both coins show the same side. _____

5. Both coins show different sides. _____

6. Both coins show heads. _____

7. Both coins show tails. _____

8. Coin 1 shows heads. _____

9. Coin 2 shows tails. _____

The number of bagels sold by the Bagel Shop in an hour is recorded in the following table.

Plain	Egg	Onion	Blueberry	Sesame	Cinnamon
24	14	12	10	8	7

Use the data from the table above to find the experimental probability of each outcome. Write your answer as a fraction (in simplest form), a decimal and a percent.

10. A plain bagel is sold. _____

11. A sesame bagel is sold. _____

12. An onion bagel is sold. _____

13. A cinnamon bagel is sold. _____

14. A blueberry or sesame bagel is sold. _____

15. An onion or egg bagel is sold. _____

16. A bagel is not an onion bagel. _____

The table shows Ray's results when he tosses a coin 80 times.

Outcome	Frequency	Total
Heads	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸	45
Tails	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸	35
		80

Use the results from the table above to find the experimental probability of each outcome. Write your answer as a fraction (in simplest form), a decimal and a percent.

17. The coin shows heads. _____

18. The coin shows tails. _____

Whazup Toyz inspected 200 toy robots for defects. There were 16 robots with defects. Write your answer as a fraction (in simplest form), a decimal and a percent.

19. What is the probability that a robot selected at random has a defect?

20. What is the probability that a robot selected at random has no defect?