

Probability

A probability (or chance) tells how likely it is that an event will occur. Probability in mathematics can be expressed as a ratio. The probability of an event occurring is the ratio of the number of favorable outcomes to the number of possible outcomes.

Probability of an event, $P(E) = \frac{\text{number of favorable outcomes}}{\text{number of possible outcomes}}$

EXAMPLE 1: Beth and Eduardo flip a coin to decide who will be the first to drive the new car. Eduardo flips the coin and Beth calls heads. What is the probability that Beth will win the toss?

There are two possible outcomes, heads or tails. There is one favorable outcome, heads.

Probability of heads = $\frac{1 \text{ (number of favorable outcomes)}}{2 \text{ (number of possible outcomes)}}$

The probability that Beth will win the toss is $\frac{1}{2}$.

EXAMPLE 2: There are 5 red marbles, 3 blue marbles, and 2 green marbles in a bag. If Maria picks one marble at random without looking, what is the probability that the marble will be blue?

$P(E) = \frac{3 \text{ the number of blue marbles}}{10 \text{ the total number of marbles}}$

The probability that the marble will be blue is $\frac{3}{10}$.

Write the probability of each event.

1. A bag contains 6 white marbles, 4 blue marbles, and 5 red marbles. What is the probability that a red marble will be picked at random?

Answer _____

2. A number cube has six sides. Each side has a number on it from 1 to 6. If a cube is rolled once, what is the probability that a 5 will show?

Answer _____

3. Wong has 3 shirts in his drawer, 1 blue, 1 white, and 1 black. If he takes a shirt without looking, what is the probability that it will be black?

Answer _____

4. Betty has a \$1 bill, a \$5 bill, a \$10 bill, and a \$20 bill in her purse. If she randomly draws out one of the bills, what is the probability that it will be a \$10 bill?

Answer _____

5. What is the probability of randomly drawing a can of peas from a box that contains 3 cans of beans, 8 cans of peas, and 5 cans of corn?

Answer _____

6. Each card in a stack has a letter on it. The letters spell the word *carrot*. What is the probability of randomly drawing a card with the letter *r*?

Answer _____