

Experimental Probability

Based on Real data

Example 1) In Lions home opener against St. Louis, Matthew Stafford completed 32 passes out of 48 attempts. Find the experimental probability of Stafford completing a pass.

$$\frac{32}{48} = \frac{2}{3}$$

Your Turn 1) In the NFC Championship game, Colin Kaepernick completed 16 passes out of 21 attempts. Find the experimental probability of Kaepernick completing a pass.

$$\frac{16}{21}$$

Example 2) A class tossed coins & recorded 161 heads and 179 tails. What is the experimental probability of heads?

$$\frac{161}{161+179} = \frac{161}{340}$$

Your Turn 2) A class tossed coins & recorded 150 heads and 100 tails. What is the experimental probability of tails?

$$\frac{100}{250} = \frac{2}{5}$$

Theoretical Probability Based on total possible outcomes.

Example 3) Find the theoretical probability of getting an even number when you roll a number cube.

Total outcomes: 6

Evens: 3

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

Your Turn 3) A jar contains 30 red marbles and 50 blue marbles. You pick one marble from the jar at random. Find the theoretical probability that you will choose a red marble.

Total: 80

$$\frac{30}{80} = \frac{3}{8}$$

Example 4) A jar contains 30 red marbles, 50 blue marbles, and 20 white marbles. You pick one marble from the jar at random. Find the theoretical probability that you will choose a red or blue marble.

Total: 100

R: 30 B: 50

$$\frac{80}{100} = \frac{4}{5}$$

Your Turn 4) Suppose you roll a number cube. Find the theoretical probability of rolling a number less than 5.

Total: 6

$$\frac{4}{6} = \frac{2}{3}$$