

2. Probability

A. Probability involves the **chance** of something happening.

$$P = \frac{\text{Successful Events}}{\text{Total Events}} = \frac{S}{T}$$

B. Example 1: Four of the 52 cards in a deck are jacks.

- If you pick one card at random from this deck, the probability a jack will be drawn is

$$P(\text{jacks}) = \frac{S}{T} = \frac{\text{all jacks}}{\text{total cards}} = \frac{4}{52} = \frac{1}{13}$$

- Always reduce probability statements to lowest terms.

C. Example 2: One marble chosen at random from a bag containing 2 red marbles, 4 blue marbles, and 3 black marbles leads to these probability statements.

$$P(\text{red}) = \frac{2}{9}$$

$$P(\text{blue}) = \frac{4}{9}$$

$$P(\text{black}) = \frac{3}{9} = \frac{1}{3}$$

$$P(\text{white}) = \frac{0}{9} = 0$$

D. Finding the probability of **successive events** requires multiplication.

- The probability of a tossed coin coming up heads is $1/2$ or 50%.
- The probability of two heads in a row is $(1/2)(1/2) = 1/4$ or 25%.
- The probability of three heads in a row is $(1/2)(1/2)(1/2) = 1/8$ or 12.5%.

Unit 47 Practice Problems

1) Calculate the mean, median, mode, and range for these numbers. 1, 3, 4, 4, 4, 5, 7

A) mean _____ B) median _____ C) mode _____ D) range _____

2) Because the numbers in question 1 are balanced around their mean, the data may be referred to as _____.

3) Calculate the mean, median, mode, and range for these numbers. 1, 3, 4, 4, 4, 8, 11

A) mean _____ B) median _____ C) mode _____ D) range _____

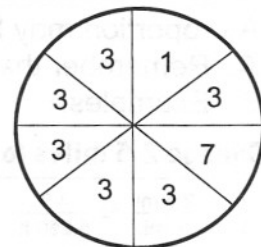
4) If the probability of an event happening is $\frac{3}{5}$, then the event is likely to happen:

A) less than $\frac{1}{2}$ the time B) always C) more than $\frac{1}{2}$ the time D) never Answer _____

5A) A hat contains 2 red cards, 3 blue cards, and 5 orange cards. What is the probability of drawing a red card? _____

5B) What is the probability of drawing 2 red cards in a row if the first red card drawn is put back into the hat? _____

6) If you hit this dart board with 1 toss, what is the probability of hitting a three?



Unit 47 answers are on page 240.

Unit 47 additional practice problems are on page 202.