

Data Analysis

Set of Numbers:

- ▶ A set of numbers is a collection of number.
- ▶ {1, 2, 14, 9, 6, 18, 24, 105, 18, 25, 30, 5, 25}

This is a set of thirteen (13) numbers

- ▶ Organized set of numbers from least to greatest.
{1, 2, 5, 6, 9, 13, 14, 18, 18, 24, 25, 30, 105}

Range:

- ▶ The range is calculated by subtracting the lowest number from the largest number.

$$105 - 1 = 104$$

The range of the set of numbers is 100.

MEASURES OF CENTRAL TENDENCY (*Median, Mode and Mean - Averages*)

Median:

- ▶ The median is the middle number which appears in the set.

Ex. The median is 14.

- ▶ When a set of numbers has an even set of numbers then divide the two middle numbers by two to find the median.

Mode:

- ▶ The mode is the number which appears most often.

Ex. The mode is 18.

Mean:

- ▶ The mean is calculated by adding all the numbers of the set then dividing the sum by the total number of numbers within the set. The resulting quotient is the mean.

Ex. $1 + 2 + 5 + 6 + 9 + 13 + 14 + 18 + 18 + 24 + 25 + 30 + 105 = 270$

$$270 \div 13 = 20.769230$$

Outliers:

- ▶ A number or numbers in a set of numbers which is significantly different from the rest of the numbers.

Ex. The outlier is 105.

Probability:

- ▶ The likelihood of a particular event; the number of times a particular outcome will occur.
- ▶ The probability that an *impossible event* will occur is 0, 0%.
- ▶ The probability that a *certain event* will occur is 1, or 100%.

$$\frac{\text{The number of outcomes favorable to that event}}{\text{Number of possible outcomes}}$$

Word Problem -

Jonathan has a box of 25 jellybeans. Each box of jellybeans has 5 orange, 5 green, 10 yellow and 3 blue and 2 black jellybean. What are the chances of Jonathan reaching in and selecting the various colors of jelly beans on the first attempt?

Orange

$$5/25 = 0.2 \times 100 = 20\%;$$

- Five out of twenty-five chance of selecting an orange jelly bean.
- A 20% chance of selecting an orange jelly bean.
- A 20 out of 100 chance of selecting an orange jelly bean.
- A 2 out of 10 chance of selecting an orange jelly bean.

Green

$$5/25 = 0.2 \times 100 = 20\%;$$

Yellow

$$10/25 = 0.4 \times 100 = 40\%;$$

Blue

$$3/25 = 0.12 \times 100 = 12\%;$$

Black

$$2/25 = 0.08 \times 100 = 8\%;$$

Independent Events:

- ▶ Two events are independent events if the result of one event does not depend on the result of the other event.

Ex. The toss of two coins. The toss of the first coin will reveal either a heads or a tails. The first toss does not influence the results of the second toss.

Word Problem -

Sarah is planning on going to her best friend’s birthday party. She is deciding on what to wear. She has three shirts (Blue, Green and Red). She also has two skirts (Long and short). What is the probability that Sarah will select a long skirt with a green shirt? Create a chart to help answer the question.

Sarah’s Wardrobe Choices

		<u>Shirts</u>		
<i>S k i r t s</i>		<u>Blue</u>	<u>Green</u>	<u>Red</u>
	<u>Long</u>	<i>Long/Blue</i>	<i>Long/Green</i>	<i>Long/Red</i>
	<u>Short</u>	<i>Short/Blue</i>	<i>Short/Green</i>	<i>Short/Red</i>

Ratio: 1:6

Fraction: 1/6

Percentage: 16.6%

Sentence: Sarah has a 1 out of 6 chance of selecting a long skirt with a green shirt.

**** Important Note:**

While it is important to develop mental math skills - the ability to arrive at a correct answers in one’s mind without doing pencil paper computations - it is equally important that students are able to ***demonstrate their math ability and understanding by showing all workings.*** The examples above are a great reference on how to show one’s working.