

# Algebra 1

Chapter 3

Section 3-5

May 13-10:02 PM

## Sets

A set is a collection of elements.  
We can write a set different ways

Roster Form

$\{1, 2, 3, 4\}$

Set Builder

$\{x \mid x \text{ is a positive integer less than } 100\}$   
such that

Oct 6-8:47 PM

## Set Concepts

**Universal Set** -- Largest possible set that you can use

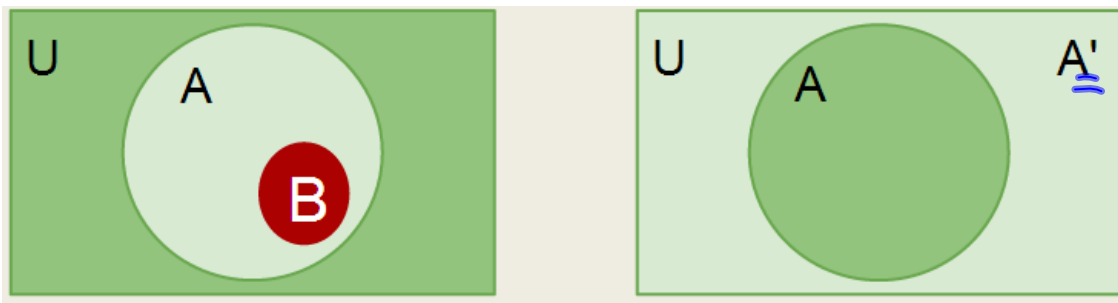
**Complement** -- All elements in universal set not in a given set (the opposite of a set)

**Empty Set** -- Set with no elements (represented as  $\emptyset$ )

**Subset** -- Set whose elements are all part of another set

Oct 6-8:47 PM

## Venn Diagrams



U is the universal set

A is a defined set in U

A' is the complement of A

B is a subset of A

Oct 6-8:47 PM

## Working with Sets

$$A = \{1, 3, 5\}$$

List all subsets of A in roster form.

Hint: there are eight...

$$\{1\}, \{3\}, \{5\}$$

$$\{1, 3\}, \{3, 5\}, \{1, 5\}$$

$$\{1, 3, 5\}$$

$$\{\} = \emptyset$$

Oct 6-8:47 PM

## Working with Sets

$$A = \{1, 3, 5\}$$

Write A in set-builder notation.

$$\{x \mid x \text{ is positive, odd integer less than or equal to } 5\}$$

$$\{x \mid x \text{ is one of the first three odd integers}\}$$

Oct 6-8:47 PM

## Working with Sets

$$G = \{x \mid x \text{ is female}\}$$

Write  $G'$  in set-builder notation.

$$G' = \{x \mid x \text{ is male}\}$$

$$G' = \{x \mid x \text{ is not female}\}$$

Oct 6-8:47 PM

## Working with Sets

$$G = \{x \mid x \text{ is female}\}$$

List two possible subsets of  $G$  in set builder notation.

$$\{\} = \emptyset$$

$$G = \{x \mid x \text{ is female}\}$$

Oct 6-8:47 PM

## Working with Sets

$$U = \{x \mid x \text{ attends FTCHS}\}$$

$$P = \{x \mid x \text{ is on the ping pong team}\}$$

Write P in roster form.

$$\{ \} = \emptyset$$

Oct 6-8:47 PM

## Working with Sets

$$U = \{x \mid x \text{ attends FTCHS}\}$$

$$P = \{x \mid x \text{ is on the ping pong team}\}$$

Write P' in roster form. notation.

$$P' = U = \{x \mid x \text{ attends FTCHS}\}$$

Oct 6-8:47 PM

## Set Builder with Inequalities

Write solutions in set-builder notation.

$$\begin{aligned} 4x - 3 &> 9 \\ +3 & \quad +3 \\ 4x &> 12 \\ \frac{4x}{4} & \quad \frac{12}{4} \\ \{x \mid x > 3\} \end{aligned}$$

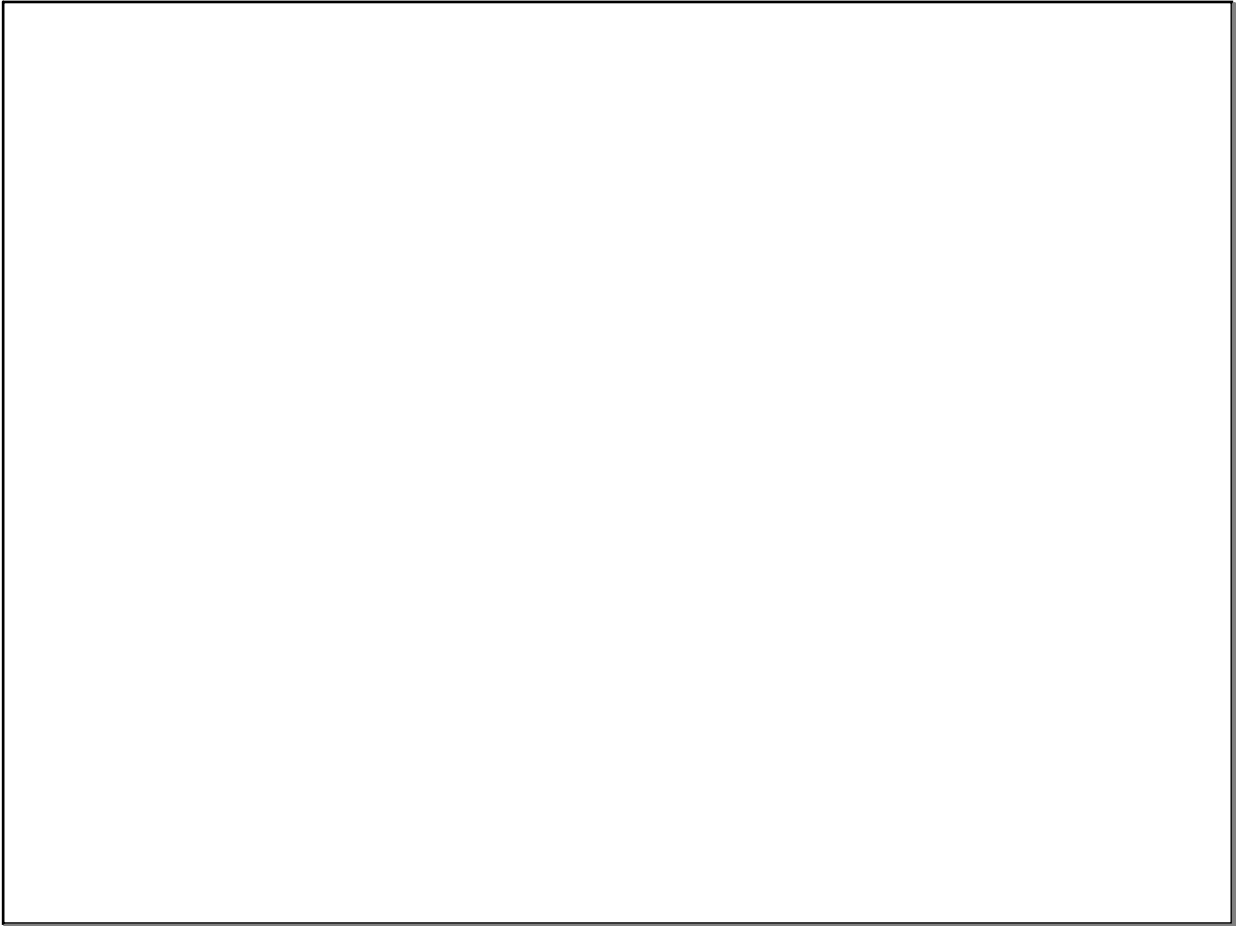
Oct 17-8:27 AM

## Set Builder with Inequalities

Write solutions in set-builder notation.

$$\begin{aligned} 12x + 3 &\leq -4(2 - 3x) \\ 12x + 3 &\leq -8 + 12x \\ -12x & \quad -12x \\ 3 &\leq -8 \\ \{0\} &\neq \{ \} = \emptyset \end{aligned}$$

Oct 17-8:27 AM



Oct 16-1:07 PM