

## Bell Ringer #16:

Solve for  $x$ .

$$-2(2x + 3) = 8x - 12$$

$$\begin{array}{r} -4x - 6 = 8x - 12 \\ -8x \quad -8x \end{array}$$

$$\begin{array}{r} -12x - 6 = -12 \\ +6 \quad +6 \end{array}$$

$$\begin{array}{r} -12x = -6 \\ \frac{-12x}{-12} = \frac{-6}{-12} \quad x = \frac{1}{2} \end{array}$$

$$7x + 3(2x + 1) = 29$$

$$7x + 6x + 3 = 29$$

$$13x + 3 = 29$$

$$\begin{array}{r} -3 \quad -3 \\ \hline \end{array}$$

$$\frac{13x}{13} = \frac{26}{13}$$

$$x = 2$$

## Upcoming Schedule

**Red Day (1<sup>st</sup> & 5<sup>th</sup>)**

**Black Day (4<sup>th</sup> & 8<sup>th</sup>)**

**Friday**

**Quiz**

**Quarter Exam Review**

**Monday**

**Quiz**

**Quarter Exam Review**

**Tuesday**

**Quarter Exam**

**Wednesday**

**Quarter Exam**

# Homework Check

## Section 2-3 Practice #1-8

## Section 2-6 Algebraic Proof

**Algebraic proof** - a proof that is made up of a series of algebraic statements

## Properties of Real Numbers

The following properties are true for any real numbers  $a$ ,  $b$ , and  $c$ .

Addition Property of Equality	If $a = b$ , then $a + c = b + c$
Subtraction Property of Equality	If $a = b$ , then $a - c = b - c$
Multiplication Property of Equality	If $a = b$ , then $a \cdot c = b \cdot c$
Division Property of Equality	If $a = b$ and $c \neq 0$ , then $\frac{a}{c} = \frac{b}{c}$
Reflexive Property of Equality	$a = a$
Symmetric Property of Equality	If $a = b$ , then $b = a$
Transitive Property of Equality	If $a = b$ and $b = c$ , then $a = c$
Substitution Property of Equality	If $a = b$ , then $a$ may be replaced by $b$ in any equation or expression
Distributive Property	$a(b + c) = ab + ac$

### Example 1

Justify each step when solving an equation.

Prove that if  $-5(x+4) = 70$ , then  $x = -18$ . Write a justification for each step.

$$-5(x + 4) = 70$$

$$-5x - 20 = 70$$

$$-5x - 20 + 20 = 70 + 20$$

$$-5x = 90$$

$$\frac{-5x}{-5} = \frac{90}{-5}$$

$$x = -18$$

Given

Distributive Property

Addition Property

Substitution Property

Division Property

Substitution Property

### Example 2

Justify each step when solving an equation.

Prove that if  $4x - 8 = 16$ , then  $x = 6$ . Write a justification for each step.

$$4x - 8 = 16$$

$$4x - 8 + 8 = 16 + 8$$

$$4x = 24$$

$$\frac{4x}{4} = \frac{24}{4}$$

$$x = 6$$

Given

Addition Property

Substitution Property

Division Property

Substitution Property

### Example 2

Justify each step when solving an equation.

Prove that if  $6x - 2 = 4x + 8$ , then  $x = 5$ . Write a justification for each step.

$$6x - 2 = 4x + 8$$

$$6x - 2 - 4x = 4x + 8 - 4x$$

$$2x - 2 = 8$$

$$2x - 2 + 2 = 8 + 2$$

$$2x = 10$$

$$\frac{2x}{2} = \frac{10}{2}$$

$$x = 5$$

Given

Subtraction Property

Substitution Property

Addition Property

Substitution Property

Division Property

Substitution Property



### Example 2

Justify each step when solving an equation.

Prove that if  $8x - 11 = 2x + 1$ , then  $x = 2$ . Write a justification for each step.

$$8x - 11 = 2x + 1$$

$$8x - 11 + 11 = 2x + 1 + 11$$

$$8x = 2x + 12$$

$$8x - 2x = 2x + 12 - 2x$$

$$6x = 12$$

$$\frac{6x}{6} = \frac{12}{6}$$

$$x = 2$$

Given

Addition Property

Substitution Property

Subtraction Property

Substitution Property

Division Property

Substitution Property

## Whiteboard Activity

Conditional  
(normal)

If  $p \rightarrow$  then  $q$

Converse  
(flip flop)

If  $q \rightarrow$  then  $p$

Inverse  
(not)

If not  $p \rightarrow$  then not  $q$

Contrapositive  
(not the flip flop)

If not  $q \rightarrow$  then not  $p$

# Homework

**Section 2-6**

**Skills Practice # 1-6**