

Pre-Algebra

To do now:

- ✓ **Complete Warm Up**
- ✓ **Have your notes out.**

Warm Up:

Solve for x:
 $8 + 2(x - 4) = -4$

Agenda:

- ✓ **Quick Review**
- ✓ **Solving inequalities**

Homework:

Make sure you can tell me the rule for solving inequalities...



Oct 26-11:27 AM

Solve for x:

$$8 + 2(x - 4) = -4$$

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

$$\frac{2x}{2} = \frac{-4}{2}$$

$$x = -2$$

Dec 23-11:05 AM

Review

Solving Equations:

1. Perform Distributive Property
2. Simplify each side of the equation by combining like terms.
3. If there are variable terms on both sides of the equation, add/subtract one of them to both sides to eliminate it.
4. If there are constants on both sides of the equation, add/subtract one of them to both sides to eliminate it. (Get this value on the other side as the term with the variable.)
5. Eliminate the coefficient of the variable by multiplication or division.

$$4(x + 3) - 6 = -2x + 8$$

$$4x + 12 - 6 = -2x + 8$$

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

$$\begin{array}{r} +2x \\ \hline 6x + 6 = 8 \\ -6 \quad -6 \\ \hline 6x = 2 \end{array}$$

$$\frac{6x}{6} = \frac{2}{6}$$

$$x = \frac{1}{3}$$

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$$-8x + 7 = 5x + 10$$

$$-8x - 5x = -7 + 10$$

Jan 3-8:01 AM

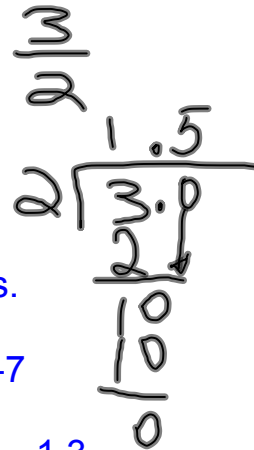
Inequalities

\leq LESS THAN OR EQUAL TO

\geq GREATER THAN OR EQUAL TO

$<$ LESS THAN

$>$ GREATER THAN



Write TWO inequalities that satisfy the values.

$-3 < 9$

$-5 > -7$

$1.5 \leq 3/2$

$-1.2 < -1.3$

Dec 23-11:09 AM

Solving Inequalities

Just like solving equations...EXCEPT, whenever you multiply or divide both sides of the inequality by a negative, change the direction of the inequality.

$<$ becomes $>$

$-3x = 12$ $-3x < 12$

\geq becomes \leq

$x + 6 = -13$

$\frac{4x}{4} \geq \frac{-16}{4}$

$x + 6 > -13$

Dec 23-11:09 AM

Solve for x:
 $8 + 2(x - 4) = -4$

$$8 + 2(x - 4) = -4$$

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

$$\begin{array}{r|l} 2x & -4 \\ \hline 2 & 2 \\ \hline & x \end{array}$$

Dec 23-11:05 AM

Review

Solving Equations:

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5. Eliminate the coefficient of the variable by multiplication or division.

$$4(x + 3) - 6 = -2x + 8$$

$$4x + 12 - 6 = -2x + 8$$

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

$$\begin{array}{r|l} -4x & -2x + 8 \\ \hline & -2x + 8 \\ \hline +6 & -6x + 8 \\ \hline +6 & -6x + 8 \\ \hline -2 & -6x \end{array}$$

$$\begin{array}{l} -2 = -6x \\ \hline -6 \quad -6 \\ \hline \frac{1}{3} = x \end{array}$$

Dec 23-11:05 AM

$$\textcircled{-3x} + 7 = 5x - 10$$

$$7 = +3x + 5x - 10$$

$$7 + 10 = 3x + 5x$$

$$\textcircled{2x} - 6 = 4x \textcircled{+9}$$

$$-6 - 9 = 4x - 2x$$

$$-15 = 2x$$

$$\textcircled{\frac{-15}{2} = x}$$

Jan 3-8:01 AM

Inequalities

\leq LESS THAN OR EQUAL TO

\geq GREATER THAN OR EQUAL TO

$<$ LESS THAN

$>$ GREATER THAN

$$-4 < 9$$

$$\underline{-4 \leq 9}$$

$$0 > -2$$

$$\underline{0 \geq -2}$$

$$1.5 < \frac{3}{2}$$

$$\underline{1.5 \geq \frac{3}{2}}$$

$$-1.2 > -1.3$$

$$\underline{-1.2 \geq -1.3}$$

Dec 23-11:09 AM

Solving Inequalities

Just like solving equations...EXCEPT, whenever you multiply or divide both sides of the inequality by a negative, change the direction of the inequality.

$<$ becomes $>$

$$-3x < 12$$

\geq becomes \leq

$$4x \geq -16$$

$$x + 6 > -13$$

Dec 23-11:09 AM

Introduction to Algebra

To do now:

- ✓ Complete Warm up
- ✓ Have your notes on the desk

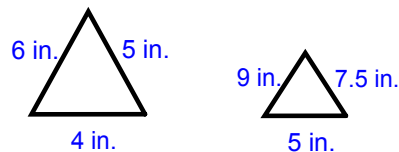
$$\frac{6}{9} = \frac{5}{7.5} = \frac{4}{5}$$

Agenda:

- ✓ Problem Solving (Word Problems)

Warm Up:

Determine if the two shapes are similar. Show proof.



Homework:

Numbers Word Problems



Oct 26-11:27 AM

Setting Up Word Problems

1. Read the problem. Identify what is being asked.
2. Define the variable. (Avoid using more than one variable...!)
3. Create a verbal model representing the problem. Remember formulas.
4. Create an algebraic model from the verbal model.
5. Solve for the variable.
6. Answer the question being asked.

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Types of Word Problems

1. Number Problems
2. Age Problems
3. Money Problems
4. Distance Problems
5. Mixture Problems

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Number Problems

Key concept:

"Consecutive": one after another

$(x, x+1, x+2 \dots)$
 $\rightarrow x, x+2, x+4 \dots \leftarrow$

"Consecutive Even Integers" and "Consecutive Odd Integers"

26 & 27 ARE THE NUMBERS

TWO CONSECUTIVE INTEGERS

ADD UP TO 53, WHAT

ARE THE NUMBERS? $2x+1=53$

$x=26$ $x =$ FIRST INTEGER $2x=52$

$x+1=27$ $x+1 =$ SECOND INTEGER $x=26$

FIRST INT + SECOND INT = TOTAL

$$x + x + 1 = 53$$

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1. A number increased by 13 is -5. Find the number.

$x =$ THE NUMBER

THE NUMBER PLUS 13 = -5

$$x + 13 = -5$$

$$x = -18$$

THE NUMBER IS -18.

1. Read the problem. Identify what is being asked.
2. Define the variable. (Avoid using more than one variable...!)
3. Create a verbal model representing the problem. Remember formulas.
4. Create an algebraic model from the verbal model.
5. Solve for the variable.
6. Answer the question being asked.

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2. Fifteen less than a number is 43. Find the number.

① $X = \text{THE NUMBER}$

② $\text{THE NUMBER} - 15 = 43$

③ $X - 15 = 43$

④ $X = 58$

⑤ $\text{THE NUMBER IS } 58.$

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Advanced Algebra

To do now:

- ✓ **Complete Warm Up**
- ✓ **Homework on desk**
(Holiday Review)

$$\frac{(4^2)^2}{-16} = \frac{-16y}{-16}$$

Warm Up:

$$\frac{(-4^2x^{-3}y^5)^2}{-16x^{-5}y^9} = \frac{x^{-6}}{x^{-5}}$$

Agenda:

- ✓ **Review the Holiday Packet**
- ✓ **Dividing Monomials**

Homework:

Come up with definitions, in your own words for "Factor", "Monomial", and "Polynomial"

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$$\begin{array}{r}
 10 \\
 2 \cdot 5 \\
 2x^2 + 7x \\
 \underline{2 \cdot x \cdot x + 7 \cdot x} \\
 x(2x + 7)
 \end{array}
 \quad \Bigg| \quad
 \begin{array}{r}
 \frac{2}{5} \cdot \frac{6}{11} \\
 \frac{22 + 30}{55} \\
 \frac{9}{14} - \frac{1}{3} \quad \frac{13}{42}
 \end{array}$$

Jan 3-12:45 PM

$$\begin{array}{r}
 2\frac{1}{5} - \frac{1}{2} \\
 \frac{11}{5} - \frac{1}{2}
 \end{array}$$

Jan 3-12:50 PM

Definitions

Prime: A NUMBER WITH ONLY 2
UNIQUE FACTORS, (1 & ITSELF.)

Composite: A NUMBER WITH
MORE THAN 2 UNIQUE FACTORS

Factor: COUNTING NUMBERS,

Monomial:

Polynomial:

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Divide

$$\frac{4x-16}{2}$$

$$\frac{42x^3-14x^2+77x}{7x}$$

$$\frac{4x^2+2x-8}{2}$$

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Factor

$$16xy^3 - 4x^2y^2$$

$$21x^4y^3 - 49x^3y^2 + 63$$

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Jan 3-10:41 AM