

Warm-Up 9/19/17

Solve for the given variable.

1. $x + (-5) = 13$

2. $\frac{y + 7}{3} = 6$

3. $\frac{a}{4} = 8$

$$\textcircled{1} \quad x + (-5) = 13$$

$$\begin{array}{r} x - 5 = 13 \\ +5 \quad +5 \\ \hline x = 18 \end{array}$$

$$\textcircled{2} \quad 3 \cdot \frac{y + 7}{3} = 6 \cdot 3$$

$$\begin{array}{r} y + 7 = 18 \\ -7 \quad -7 \\ \hline y = 11 \end{array}$$

$$\textcircled{3} \quad 4 \cdot \frac{a}{4} = 8 \cdot 4$$
$$a = 32$$

Module 4: Equations & Inequalities.

Standards:

MFAEI1. Students will create and solve equations and inequalities in one variable.

a. Use variables to represent an unknown number in a specified set (conceptual understanding of a variable). (MGSE6.EE.2, 5, 6)

e. Use variables to solve real-world and mathematical problems. (MGSE6.EE.7, MGSE.7.EE.4)

Essential Questions 9/19/17

- How do we solve inequalities with one variable?

Objective

- I can set up inequalities to model real world situations and solve them.

Writing Inequality Notes - INB

Inequalities Key Phrases

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|--|--|
| <p style="text-align: center;">$<$</p> <ul style="list-style-type: none">• is less than• Under• is fewer than• is below• is lower than• beneath• a better deal | <p style="text-align: center;">$>$</p> <ul style="list-style-type: none">• is greater/larger than• is more than• over• above• exceeded/increased• is higher than• is longer than |
| <p style="text-align: center;">\leq</p> <ul style="list-style-type: none">• is less than or equal to• At most• Maximum• is no more than | <p style="text-align: center;">\geq</p> <ul style="list-style-type: none">• is greater than or equal to• at least• minimum• is <u>no</u> less than |

Steps to Writing Inequalities:

- 1st: Read carefully and underline key words
 2nd: Write a let statement (what your variable equals)
 3rd: Determine whether to use $<$, \leq , $>$, or \geq
 4th: Write and solve the inequality
 5th: Write your answer in a sentence.

Represent each of the following as an algebraic expression.

- 1) x is at least 45 $x \geq 45$
- 2) the sum of 3t and 4t is at most 16 $3t + 4t \leq 16$
- 3) 9 less than a number is under 10 $x - 9 < 10$
- 4) the quotient of x and y is more than d $\frac{x}{y} > d$

5) Natasha wants to treat her friends to the movies. The movie tickets cost \$11.50 each. She can spend no more than \$46. How many friends can she treat to the movies? \leq

Let $x = \#$ of friends.

$$\frac{11.50x}{11.50} \leq \frac{46}{11.50}$$

$$x \leq 4$$

Natasha can treat no more than 4 friends.

6) Erin wants to buy a new t-shirt and pair of shorts. Her mom gave her \$50 to spend on both. If the t-shirt Erin wants cost \$14.65, what is the maximum Erin can spend on shorts?

\leq

$$\begin{array}{r} 14.65 + x \leq 50 \\ -14.65 \quad -14.65 \\ \hline x \leq 35.35 \end{array}$$

The maximum Erin can spend on shorts is \$35.35

7) Al earns \$5.95 per hour working after school. He needs at least \$215 for his holiday shopping. How many hours must he work to reach his goal?

Let $x = \#$ hours to work

$$\frac{5.95x}{5.95} \geq \frac{215}{5.95}$$

$$x \geq 36.13$$

Al must work at least 36 hours to reach his goal.

8) The dance committee hired a DJ for the fall dance. The DJ charges \$125 per hour. The committee wants to keep the total cost under \$500. What is the maximum amount of hours the DJ will play at the dance?

Let $x =$ # of hours the DJ plays.

$$\frac{125x}{125} \leq \frac{500}{125}$$

$$x \leq 4$$

The DJ will play a maximum of four hours

Attachments

Day 3- Graph Inequalities.ppt