NAME _____ DATE _____ PERIOD _____

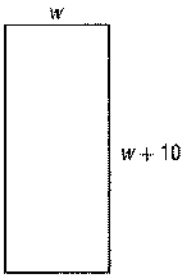
Word Problem Practice (*Solving Linear Equations*) Sept 14th, 2020, 5th day

Show all your steps

1. **AGES** Robert's father is 5 years older than 3 times Robert's age. Let Robert's age be denoted by R and let Robert's father's age be denoted by F. Write an equation that relates Robert's age and his father's age.

2. **AIRPLANES** The Citation Sovereign is a small jet that can carry up to 2650 pounds. The number of passengers p and the number of suitcases c that the airplane can carry are estimated by the equation $180p + 60c = 2650$. If 10 people board the aircraft, how many suitcases can the airplane carry?

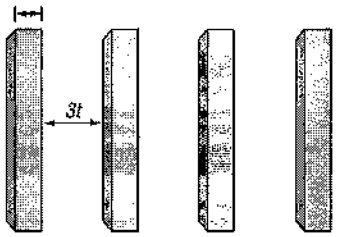
3. **GEOMETRY** The length of a rectangle is 10 units longer than its width. If the total perimeter of the rectangle is 44 units, what is the width?



4. **SAVINGS** Jason started with d dollars in his piggy bank. One week later, Jason doubled the amount in his piggy bank. Another week later, Jason was able to add \$20 to his piggy bank. At this point, the piggy bank had \$50 in it. What is d?

NAME _____ DATE _____ PERIOD _____

5. DOMINOES Nancy is setting up a train of dominos from the front entrance straight down the hall to the kitchen entrance. The thickness of each domino is t. Nancy places the dominoes so that the space separating consecutive dominoes is $3t$. The total distance that N dominoes takes up is given by $d = t(4N + 1)$.



a. Nancy measures her dominoes and finds that $t = 1$ centimeter. She measures the distance of her hallway and finds that $d = 321$ centimeters. Rewrite the equation that relates d, t, and N with the given values substituted for t and d.

b. How many dominoes did Nancy have in her hallway?

6) Joan can paint a house in 11 hours. If Sandy helps, it takes them hours. Without help, how long would it take Sandy to finish this job?

7) For Dan, it takes 6 hours to paint a room. However, Mary takes 10 hours to do the same thing. If working together, how long would they take?

8) Joan can mop the store in 5 hours. If Tom helps, it takes them 2 hours. Without help, how long would it take Tom to complete this job?

NAME _____ DATE _____ PERIOD _____

Study Guide (*Solving Linear Inequalities*), *sep 15th, 6th day*

One-Step Inequalities The following properties can be used to solve inequalities.

Addition and Subtraction Properties for Inequalities	Multiplication and Division Properties for Inequalities
For any real numbers a, b, and c: If $a < b$, then $a + c < b + c$ and $a - c < b - c$. If $a > b$, then $a + c > b + c$ and $a - c > b - c$.	For any real numbers a, b, and c, with $c \neq 0$: If c is positive and $a < b$, then $ac < bc$ and $\frac{a}{c} < \frac{b}{c}$. If c is positive and $a > b$, then $ac > bc$ and $\frac{a}{c} > \frac{b}{c}$. If c is negative and $a < b$, then $ac > bc$ and $\frac{a}{c} > \frac{b}{c}$. If c is negative and $a > b$, then $ac < bc$ and $\frac{a}{c} < \frac{b}{c}$.

These properties are also true for $\leq$ and $\geq$.

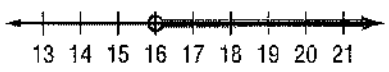
Example 1: Solve $2x + 4 > 36$.
Graph the solution set on a number line.

$2x + 4 - 4 > 36 - 4$

$2x > 32$

$x > 16$

The solution set is $\{x \mid x > 16\}$.



Example 2: Solve $17 - 3w \geq 35$.
Graph the solution set on a number line.

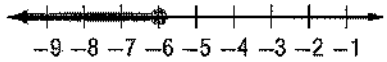
$17 - 3w \geq 35$

$17 - 3w - 17 \geq 35 - 17$

$-3w \geq 18$

$w \leq -6$

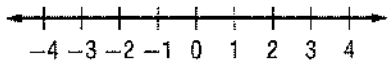
The solution set is $\{w \mid w \leq -6\}$.



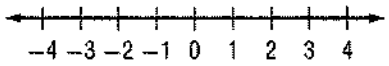
Exercises

Solve each inequality. Then graph the solution set on a number line.

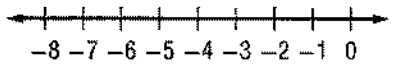
1. $7(7a - 9) \leq 84$



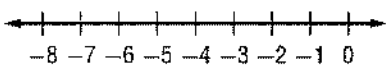
2. $3(9z + 4) > 35z - 4$



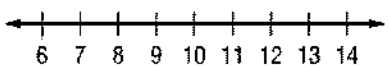
3. $5(12 - 3n) < 165$



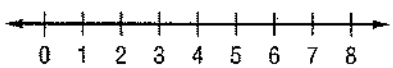
4. $18 - 4k < 2(k + 21)$



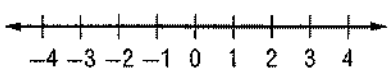
5. $4(b - 7) + 6 < 22$



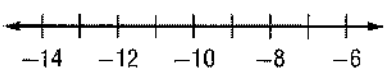
6. $2 + 3(m + 5) \geq 4(m + 3)$



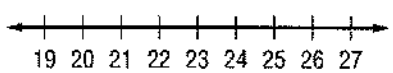
7. $4x - 2 > -7(4x - 2)$



8. $\frac{1}{3}(2y - 3) > y + 2$



9. $2.5d + 15 \leq 75$



NAME _____ DATE _____ PERIOD _____

1-2 Study Guide *(continued)*

Solving Linear Inequalities

Multi–Step Inequalities An inequality is a statement that involves placing the inequality sign between two expressions. In order to solve the inequality, you need to find the set of all the values of the variable that makes the inequality true.

Example: GAMES After three quarters of the season has past, the Tigers have won 48 out of 72 games. How many of the remaining games must they win in order to win more than 70% of all their games this season?

Understand Let x be the number of remaining games that the Tigers must win. The total number of games they will have won by the end of the season is $48 + x$. They should win at least 70% of their games. If 72 games is three quarters of the season, then the entire season is $72 \div \frac{3}{4}$ or 96 games.

Plan $\frac{48+x}{96} > 0.7$

Solve

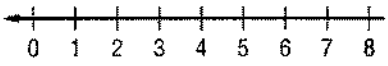
$\frac{48+x}{96} > 0.7$	Original Inequality
$48 + x > 0.7(96)$	Multiply each side by 96.
$48 + x > 67.2$	Simplify.
$x > 19.2$	Subtract 48 from each side.

The Tigers have to win 20 or more games.

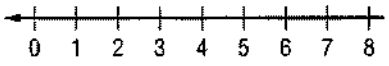
Exercises

Solve each inequality. Then graph the solution set on a number line.

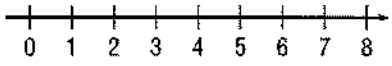
1. $c \geq \frac{c+4}{3}$



2. $r + 7 < 3(2r - 6)$



3. $3h < \frac{2h+26}{5}$



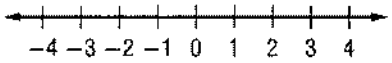
4. Jim makes $8.50 an hour. Each week, 26% of his total pay is deducted for taxes. How many hours does Jim have to work if he wants his take–home pay to be at least $300 per week? Write and solve an inequality for this situation.

NAME _____ DATE _____ PERIOD _____

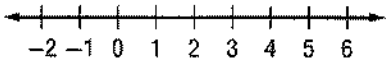
Practice (*Solving Linear Inequalities*), *sep 16th, 7th day*

Solve each inequality. Then graph the solution set on a number line.

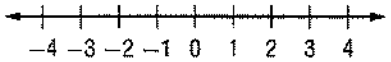
1. $8x - 6 \geq 10$



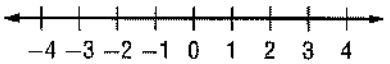
2. $23 - 4u < 11$



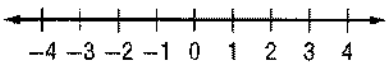
3. $-16 - 8r \geq 0$



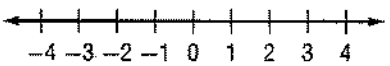
4. $14c < 9c + 5$



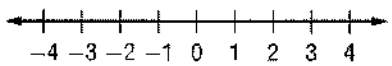
5. $9x - 11 > 6x - 9$



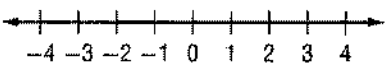
6. $-3(4w - 1) > 18$



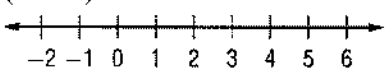
7. $1 - 8u \leq 3u - 10$



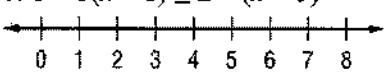
8. $17.5 < 19 - 2.5x$



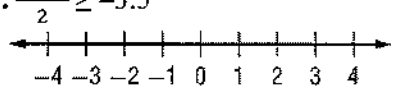
9. $9(2r - 5) - 3 < 7r - 4$



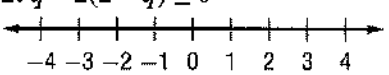
10. $1 + 5(x - 8) \leq 2 - (x + 5)$



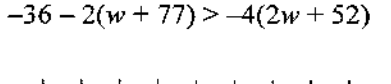
11. $\frac{4x-3}{2} \geq -3.5$



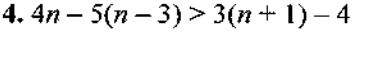
12. $q - 2(2 - q) \leq 0$



13. $-36 - 2(w + 77) > -4(2w + 52)$



14. $4n - 5(n - 3) > 3(n + 1) - 4$



Define a variable and write an inequality for each problem. Then solve.

15. Twenty less than a number is more than twice the same number.

16. Four times the sum of twice a number and −3 is less than 5.5 times that same number.

17. HOTELS The Lincoln's hotel room costs $90 a night. An additional 10% tax is added. Hotel parking is $12 per day. The Lincoln's expect to spend $30 in tips during their stay. Solve the inequality $90x + 90(0.1)x + 12x + 30 \leq 600$ to find how many nights the Lincoln's can stay at the hotel without exceeding total hotel costs of $600.

18. BANKING Jan's account balance is $3800. Of this, $750 is for rent. Jan wants to keep a balance of at least $500. Write and solve an inequality describing how much she can withdraw and still leave enough for rent and a $500 balance.

NAME _____ DATE _____ PERIOD _____

Sep 17th, 2020

1-3 Rate of Change and Slope

What You'll Learn

Skim the lesson. Write two things you already know about rate of change and slope.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Write the definition of the word *ratio* and list three ways that a ratio can be expressed. By scanning ahead, how are ratios expressed in this lesson?

_____

_____

_____

_____

_____

New Vocabulary Write the definition next to each term.

rate of change ▶ _____

_____

_____

slope ▶ _____

_____

_____

Rate of Change

Complete the tables so that Table A has a *rate of change* of 30 people per year and Table B has a *rate of change* of –3.2 inches per minute.

Table A

Year	People
0	
4	125
5	
8	

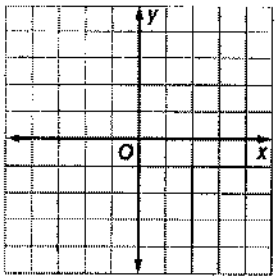
Table B

Minutes	Inches
1	
2	
4	38.6
7	

Slope

Use each of the indicated methods to calculate the slope of the line described.

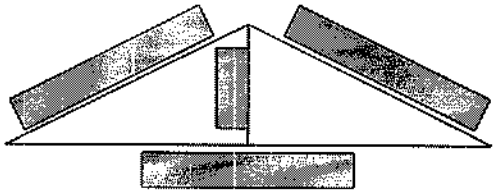
a line that passes through the points (–1, 4) and (3, –2)

Use (–1, 4) as (x_1, y_1) and (3, –2) as (x_2, y_2).	Use (3, –2) as (x_1, y_1) and (–1, 4) as (x_2, y_2).	Plot the points to determine $\frac{\text{rise}}{\text{run}}$. 

Did you get the same slope all three times?

Helping You Remember

Label the shaded boxes in the diagram as a pictorial reminder of *negative, positive, zero,* and *undefined* slope.



NAME _____ DATE _____ PERIOD _____

Skills Practice *(Rate of Change and Slope), Sept 18th, 9th day*

Show all your work, Use separate sheet of paper if needed.

Find the slope of the line that passes through each pair of points.

1. (1, 5), (–1, –3)

2. (0, 2), (3, 0)

3. (1, 9), (0, 6)

4. (8, –5), (4, –2)

5. (–3, 5), (–3, –1)

6. (–2, –2), (10, –2)

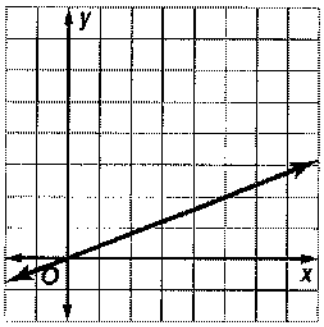
7. (4, 5), (2, 7)

8. (–2, –4), (3, 2)

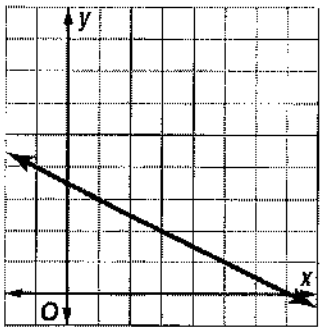
9. (5, 2), (–3, 2)

Determine the rate of change of each graph.

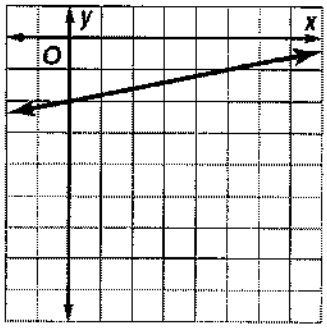
10.



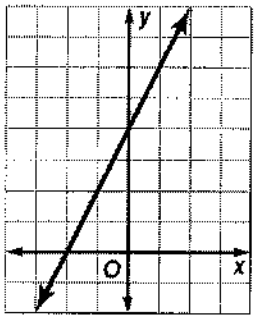
11.



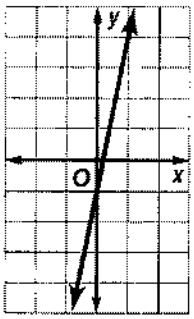
12.



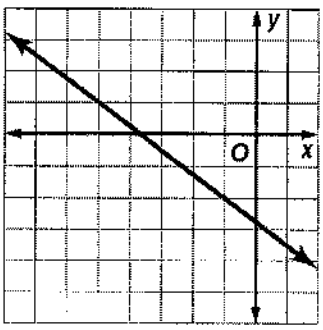
13.



14.



15.



16. HIKING Naomi left from an elevation of 7400 feet at 7:00 A.M. and hiked to an elevation of 9800 feet by 11:00 A.M. What was her rate of change in altitude?

NAME _____ DATE _____ PERIOD _____

Find the slope and y- intercept of each equation

1. **Y = 2x +3**
2. **Y = -4x – 10**
3. **Y = -5x**
4. **Y = 1/2x – 5**
5. **Y = -2**
6. **Y = 4x + 5**

Write the following equations in slope intercept forma and find slope.

1. **x + 2y = 5**
2. **2x – y = 10**
3. **x + y = 3**
4. **–x – 4y = 6**
5. **7x + 10 = 2y**

ID: 1

Show all your work

Name_____

September 21st, 2020 .... 10th day

Date_____ Period____

Write the slope-intercept form of the equation of each line.

1) $y-5=\frac{7}{4}(x-4)$

2) $y-5=0$

3) $y-5=-5(x+1)$

4) $y=\frac{5}{3}(x+3)$

5) $y-2=\frac{2}{3}(x-3)$

6) $y-1=0$

7) $y-5=-2(x-3)$

8) $y-3=-\frac{5}{7}(x+5)$

9) $y=-(x+3)$

10) $y-4=-\frac{1}{2}(x-3)$

11) $y-1=-4(x-3)$

12) $y-1=-2(x-2)$

13) $y+4=\frac{5}{2}(x+2)$

14) $y+1=4(x-1)$

15) $y-3=\frac{8}{5}(x-5)$

16) $y=-(x+5)$

17) $y+5=6(x+2)$

18) $y+4=-2(x-4)$

19) $y+4=\frac{9}{5}(x+5)$

20) $y+4=3(x+1)$

NAME _____ DATE _____ PERIOD _____

Find the slope and y- intercept of each equation

1. **Y = 2x +3**
2. **Y = -4x – 10**
3. **Y = -5x**
4. **Y = 1/2x -- 5**
5. **Y = -2**
6. **Y = 4x + 5**

Write the following equations in slope intercept forma and find slope.

1. **x + 2y = 5**
2. **2x – y = 10**
3. **x + y = 3**
4. **–x – 4y = 6**
5. **7x + 10 = 2y**