Name ____________________ Date ____________ Class ____________ 16

LESSON 3-3

Interpreting the Unit Rate as Slope

Reteach

Any questions please Contact Mr. Watson on the remind App.

A rate is a comparison of two quantities that have different units.

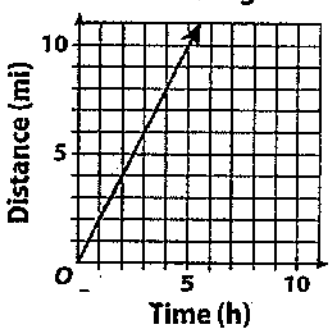
A **unit rate** is a rate in which the second quantity is 1 unit.

For example, walking 10 miles every *5 hours* is a rate. Walking 2 miles every *1 hour* is the equivalent unit rate.

$$\frac{10 \text{ miles}}{5 \text{ hours}} = \frac{2 \text{ miles}}{1 \text{ hour}} = 2 \text{ mi/h}$$

The slope of a graph represents the unit rate. To find the unit rate, find the slope.

Walking



Step 1: Use the origin and another point to find the slope.

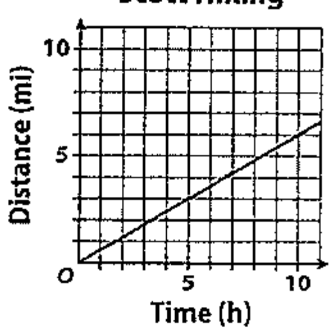
$$\text{slope} = \frac{\text{rise}}{\text{run}} = \frac{10-0}{5-0} = \frac{10}{5} = 2$$

Step 2: Write the slope as the unit rate.

slope = unit rate = 2 mi/h

Find the slope of the graph and the unit rate.

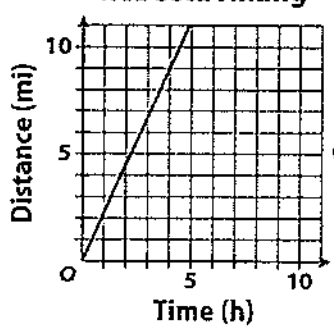
1. **Scott Hiking**



slope = $\frac{\text{rise}}{\text{run}}$ = ________

unit rate = ________ mi/h

2. **Rebecca Hiking**



slope = $\frac{\text{rise}}{\text{run}}$ = ________

unit rate = ________ mi/h

Students,
I hope each and every one of you are doing good and staying safe. I'm very proud of all of you for the hardwork you have given me. Know we are always thinking of you. I am always here if you need anything

Best Wishes,

Mr. Watson

Name ______________________ Date ______________ Class ______________ 17

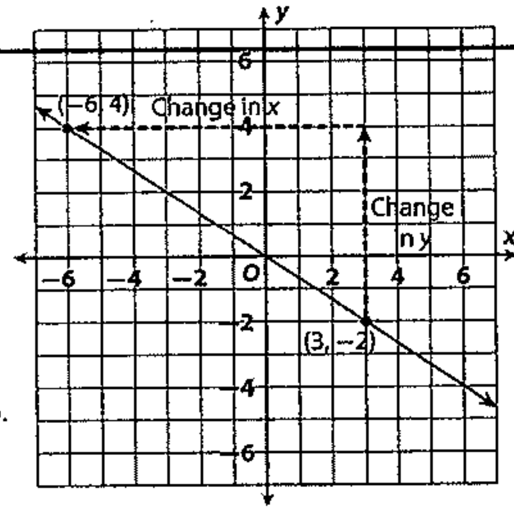
LESSON 3-2

Rate of Change and Slope

Reteach

Look at the relationships between the table, the graph, and the slope.

First value (x)	Second value (y)
−6	4
−3	2
0	0
3	−2



To find the slope, choose two points, using the table or graph. For example, choose (−6, 4) and (3, −2).

Change in y: $4 - (-2) = 6$

Change in x: $-6 - 3 = -9$

$$\text{Slope} = \frac{\text{change in } y}{\text{change in } x} = \frac{6}{-9} = -\frac{2}{3}$$

Use the example above to complete Exercises 1 and 2.

1. The slope is negative. In the table, as the values of x decrease, the values of y ______________.

2. The slope is negative. In the graph, as you move from left to right, the line of the graph is going ______________ (up or down).

Solve.

3. Suppose the slope of a line is positive. Describe what happens to the value of x as the value of y increases.

____

____

4. Suppose the slope of a line is positive. Describe what happens to the graph of the line as you move from left to right.

____

____

5. Two points on a line are (3, 8) and (−3, 2). What is the slope of the line?

____

Name 18

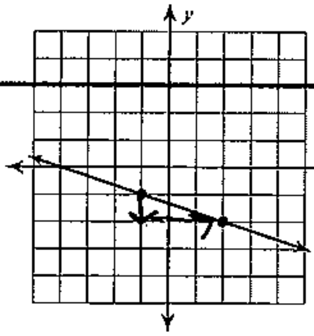
Slope

Date__________ Period____

Find the slope of each line. ★ use $\frac{\text{rise}}{\text{run}}$

★reminder work left → right

1)



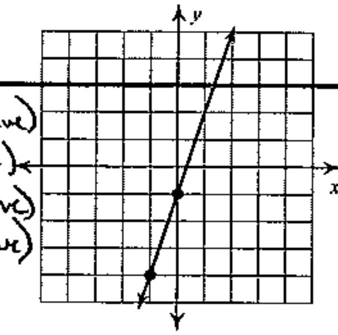
down 1

right 3

$\frac{-1}{3}$ ★ remember to reduce if possible

down (negative)
up (positive)
left (negative)
right (positive)

2)



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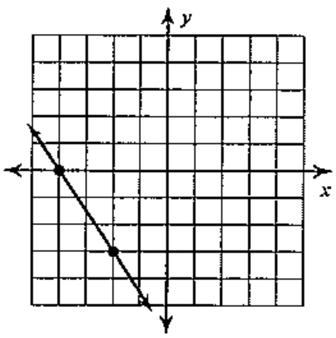

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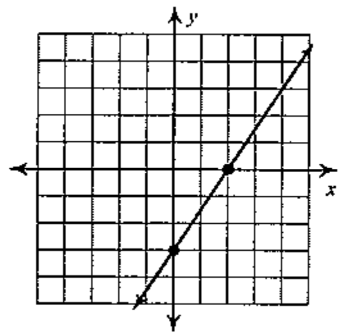

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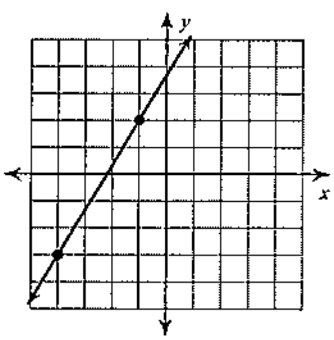

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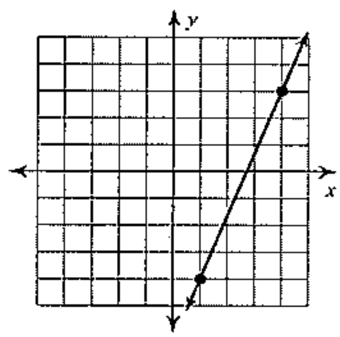

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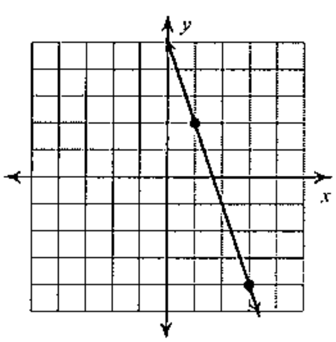

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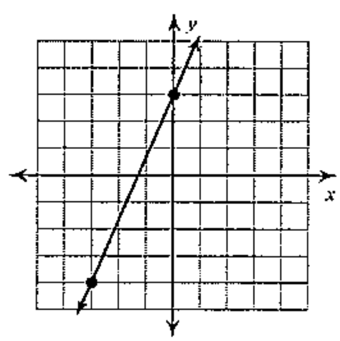

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LESSON 4-1

Representing Linear Nonproportional Relationships

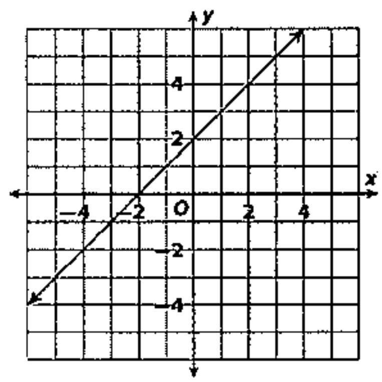
Reteach

A relationship will be proportional if the ratios in a table of values of the relationship are constant. The graph of a proportional relationship will be a straight line through the origin. If either of these is not true, the relationship is nonproportional.

To graph the solutions of an equation, make a table of values. Choose values that will give integer solutions.

A. Graph the solutions of $y = x + 2$.

x	–2	–1	0	1	2
y	0	1	2	3	4



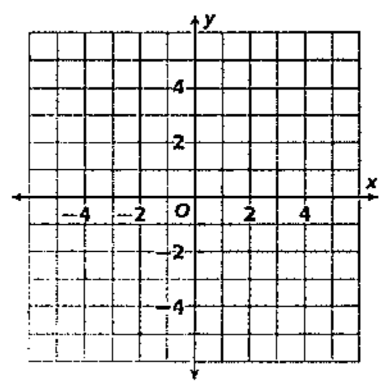
B. Tell whether the relationship is proportional. Explain.

The graph is a straight line, but it does **not** go through the origin, so the relationship is not proportional.

Make a table and graph the solutions of each equation.

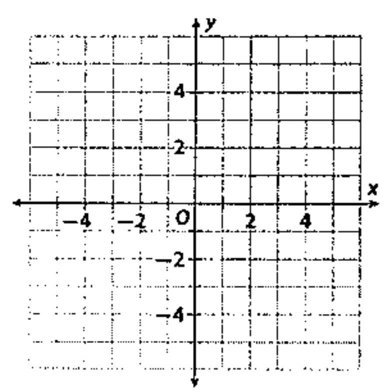
1. $y = 3x + 1$

x	–2	–1	0	1	2
y					



2. $y = -x - 2$

x	–2	–1	0	1	2
y					



Find the slope of the line through each pair of points. $\frac{Y_2-Y_1}{X_2-X_1}$

20

$X_1 Y_1 \quad X_2 Y_2$

9) (8, 10), (−7, 14) ☆ reduce if possible

$\frac{Y_2-Y_1}{X_2-X_1}$ Plug In → $\frac{14-10}{-7-8} = \frac{4}{-15}$

10) (−3, 1), (−17, 2)

11) (−20, −4), (−12, −10)

12) (−12, −5), (0, −8)

---

13) (−19, −6), (15, 16)

14) (−6, 9), (7, −9)

15) (−18, −20), (−18, −15)

16) (12, −18), (11, 12)

Find the slope of each line. $y = mx + b$ m= slope y= y-int

17) $y = -5x - 1$

Slope=

y-int=

18) $y = \frac{1}{3}x - 4$

Slope=

y-int=

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

Slope=

y-int=

20) $y = 1$

Slope=

y-int=

21) $y = \frac{1}{4}x + 1$

Slope=

y-int=

22) $y = -\frac{2}{3}x - 1$

Slope=

y-int=

23) $y = -x + 2$

Slope=

y-int=

24) $y = -x - 1$

Slope=

y-int=

25) $2x + 3y = 9$ ☆ write in $y=mx+b$

26) $5x + 2y = 6$ ☆ write in $y=mx+b$

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LESSON 5-2

Writing Linear Equations from a Table

Reteach

A linear relationship can be described using an equation in slope-intercept form, $y = mx + b$, where m is the slope and b is the y-intercept. Recall that the y-intercept b is where the graph of the equation crosses the y-axis, which is at point $(0, b)$.

The table below shows the linear relationship between the hours is takes to repair a car and the total cost of the repairs, including the cost of the parts.

Look for an x-value of 0. The corresponding y-value, 325, is the y-intercept.

Hours Worked, x	Total Cost ($), y
0	325
2	425
4	525
6	625

+2 +100

Find changes in x-values and y-values. Then use the values to find the slope:

$$m = \frac{\text{change in } y\text{-values}}{\text{change in } x\text{-values}} = \frac{100}{2} = 50$$

Using x-values that differ by 1 will require the least calculation.

Use the y-intercept, $b = 325$, and the slope, $m = 50$ to write an equation for the relationship.

$y = mx + b$

$y = 50x + 325$

Write an equation in slope-intercept form for each linear relationship.

1. The total monthly cost, y, for smartphone service depends on the number of text messages, x.

Text Messages, x	0	10	20	30
Cost ($), y	40.00	42.00	44.00	46.00

slope: ______________

y-intercept: ______________

equation: ______________

2. The total cost, y, for a taxi ride depends on the number of miles traveled, x.

Distance (mi), x	0	1	5	10
Total Cost ($), y	2.50	5.00	15.00	27.50

slope: ______________

y-intercept: ______________

equation: ______________

Name ______________________ Date ______________ Class ______________

LESSON 4-3

Graphing Linear Nonproportional Relationships Using Slope and *y*-Intercept

Reteach

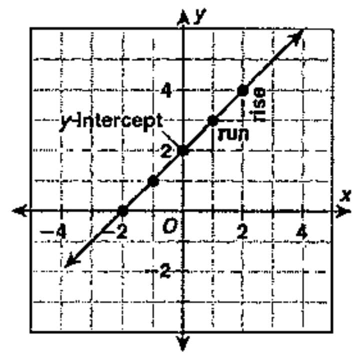
You can graph a linear function by graphing the *y*-intercept of the line and then using the slope to find other points on the line.

The graph shows $y = x + 2$.

To graph the line, first graph the *y*-intercept which is located at (0, 2).

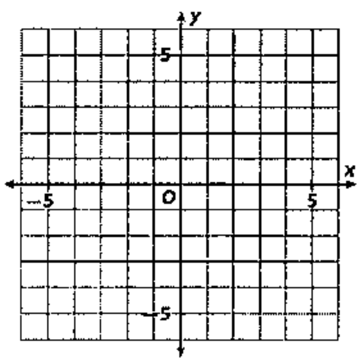
Because the slope is 1 or $\frac{1}{1}$, from the *y*-intercept, rise 1 and run 1 to graph the next point.

Connect the points with a straight line.



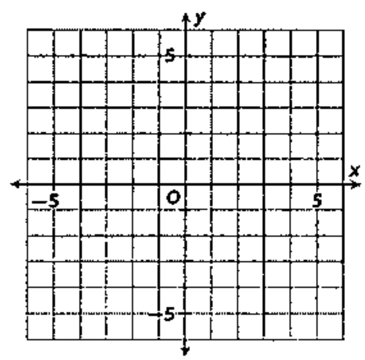
Graph each equation using the slope and the *y*-intercept.

1. $y = 4x - 1$



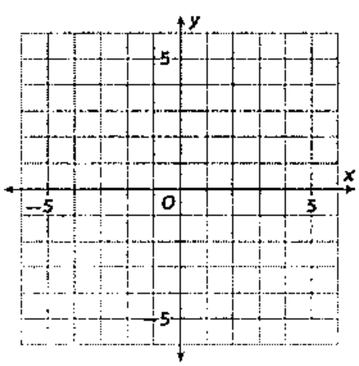
slope = _____ *y*-intercept = _____

2. $y = -\frac{1}{2}x + 2$



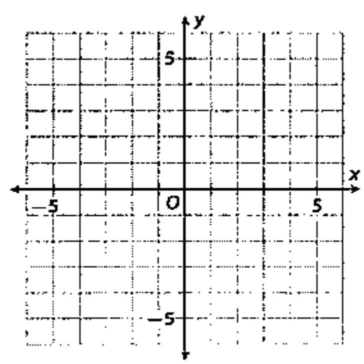
slope = _____ *y*-intercept = _____

3. $y = -x + 1$



slope = _____ *y*-intercept = _____

4. $y = 2x - 3$



slope = _____ *y*-intercept = _____

Name________________________________ 23

Proportions

Date________________ Period____

State if each pair of ratios forms a proportion.

1) $\frac{4}{2}$ and $\frac{20}{6}$

$\underbrace{4\times6}$? $\underbrace{2\times20}$

24 = 40

☆ cross-multiply.

☆ if they equal each other they are proportional.

☆ Is the answer to number 1 proportional?

3) $\frac{4}{3}$ and $\frac{16}{12}$

4) $\frac{4}{3}$ and $\frac{8}{6}$

5) $\frac{12}{24}$ and $\frac{3}{4}$

6) $\frac{6}{9}$ and $\frac{2}{3}$

Solve each proportion. (cross multiply and divide)

7) $\frac{10}{k} = \frac{8}{4}$

$10\times4\div8$

?

8) $\frac{m}{10} = \frac{10}{5}$

9)

$\frac{v}{12} = \frac{10}{2}$

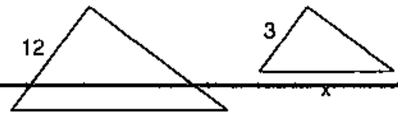
10) $\frac{3}{x} = \frac{6}{10}$

Name________________________________

Similar Figures

Date__________________ Period 24

Each pair of figures is similar. Find the missing side.

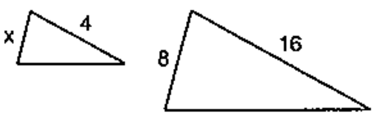
1)


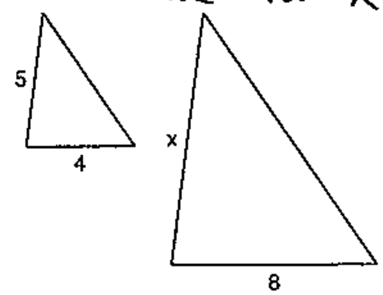
large triangle small triangle

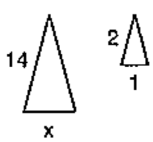
$$\frac{12}{20} = \frac{3}{x}$$

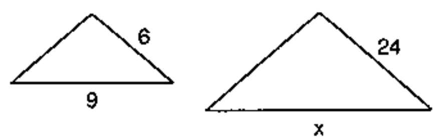
$20 \times 3 \div 12 =$ ____________

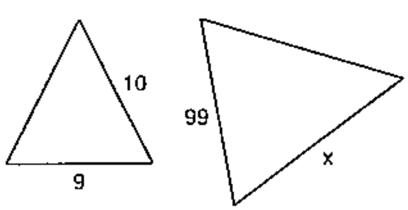
☆ set up a proportion.
☆ pick sides that match up.
* 12 on the big triangle matches 3 on the small on so we put those at the top.
* 20 on the big triangle matches X on the small one. Now put those on the bottom.
☆ final step cross multiply and divid to solve for X.

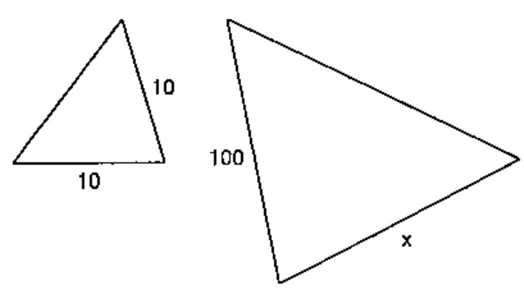
3)


4)


5)


6)


7)


8)


Name ______________________ Date ____________ Class ____________

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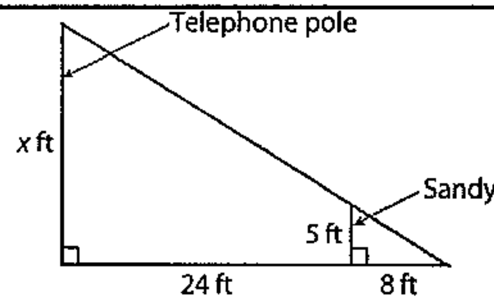
LESSON 11-3

Angle-Angle Similarity

Reteach

When solving triangle similarity problems involving proportions, you can use a table to organize given information and set up a proportion.

A telephone pole casts the shadow shown on the diagram. At the same time of day, Sandy, who is 5 feet tall, casts a shadow 8 feet long, as shown. Find the height of the telephone pole.



Organize distances in a table. Then use the table to write a proportion.

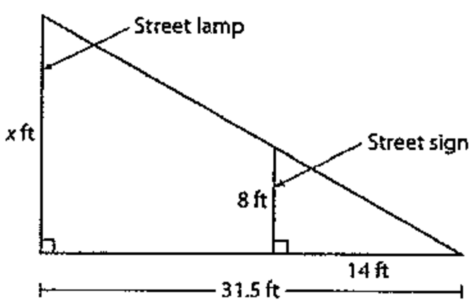
	Pole	Sandy
Height (ft)	x	5
Length of shadow (ft)	24 + 8, or 32	8

$$\frac{x}{32} = \frac{5}{8}$$

Solve the proportion. The height of the telephone pole is 20 feet.

Complete the table. Then find the unknown distance.

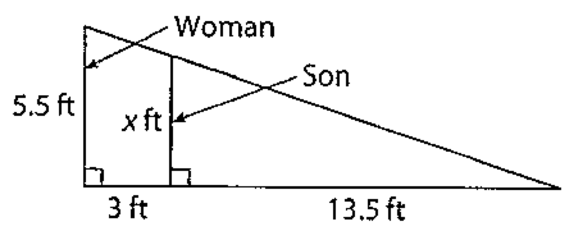
1. A street lamp casts a shadow 31.5 feet long, while an 8-foot tall street sign casts a shadow 14 feet long.



	Lamp	Sign
Height (ft)		
Length of shadow (ft)		

Height of street lamp = ______________

2. A 5.5-foot woman casts a shadow that is 3 feet longer than her son's shadow. The son casts a shadow 13.5 feet long.



	Woman	Son
Height (ft)		
Length of shadow (ft)		

Height of son = ______________

Name ______________________ Date ______________ Class ______________ 26

LESSON 11-2

Angle Theorems for Triangles

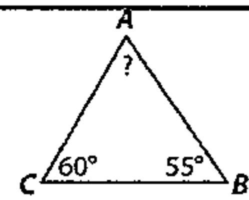
Reteach

If you know the measure of two angles in a triangle, you can subtract their sum from 180°. The difference is the measure of the third angle.

The two known angles are 60° and 55°.

$60° + 55° = 115°$

$180° - 115° = 65°$



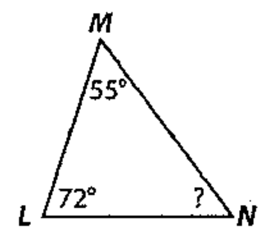
Solve.

1. Find the measure of the unknown angle.

   Add the two known angles: ____ + ____ = ____

   Subtract the sum from 180°: 180 – ____ = ____

   The measure of the unknown angle is: ____

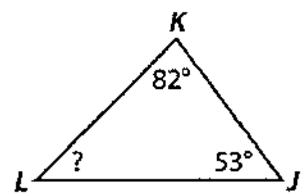


2. Find the measure of the unknown angle.

   Add the two known angles: ____ + ____ = ____

   Subtract the sum from 180°: 180 – ____ = ____

   The measure of the unknown angle is: ____



$\angle DEG$ is an **exterior angle.**

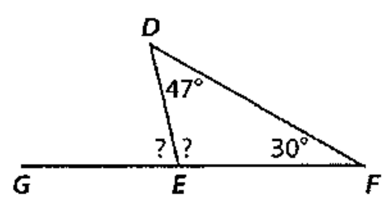
The measure of $\angle DEG$ is equal to the sum of $\angle D$ and $\angle F$.

$47° + 30° = 77°$

You can find the measure of $\angle DEF$ by subtracting 77° from 180°.

$180° - 77° = 103°$

The measure of $\angle DEF$ is 103°.



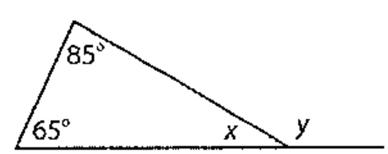
Solve.

3. Find the measure of angle *y*.

   85° + 65° = ______________

4. Find the measure of angle *x*.

   180° – ____ = ____



Order of Operations

Name________________ 27

Date________________ Period____

Evaluate each expression. use PEMDAS. show all work.

1) $(30-3)\div 3$

2) $(21-5)\div 8$

3) $1+7^2$

4) $5\times 4-8$

5) $8+6\times 9$

6) $3+17\times 5$

7) $7+12\times 11$

8) $15+40\div 20$

9) $20+16-15$

10) $19-15-3$

11) $9\times(3+3)\div 6$

12) $(9+18-3)\div 8$

Name________________ 28

Evaluating Variable Expressions

Date________________ Period____

Evaluate each using the values given.

1) $n^2 - m$; use $m = 7$, and $n = 8$

$8^2 - 7$

$8 \cdot 8 = 64$

$64 - 7$

57

☆ replace the letter with the number
☆ Then use order of operations to solve
☆ Show all work.

3) $yx \div 2$; use $x = 7$, and $y = 2$

4) $m - n \div 4$; use $m = 5$, and $n = 8$

5) $x - y + 6$; use $x = 6$, and $y = 1$

6) $z + x^3$; use $x = 1$, and $z = 19$

7) $y + yx$; use $x = 15$, and $y = 8$

8) $q \div 6 + p$; use $p = 10$, and $q = 12$

9) $x + 8 - y$; use $x = 20$, and $y = 17$

10) $15 - (m + p)$; use $m = 3$, and $p = 10$

11) $10 - x + y \div 2$; use $x = 5$, and $y = 2$

12) $p - 2 + qp$; use $p = 7$, and $q = 4$

Name ________ 29

The Distributive Property (Show all work)

Date ________ Period ____

Simplify each expression.

1) $6(1 - 5m)$

$6(1) - 6(5m)$

$6 - 30m$

★ Pass out the 6 using multiplication. Remember to pass out to all numbers in the ( ).
★ remember combining like terms. We can NOT put 6 and −30m together with addition or Subtraction

3) $3(4 + 3r)$

4) $3(6r + 8)$

5) $4(8n + 2)$

6) $-(-2 - n)$

7) $-6(7k + 11)$

8) $-3(7n + 1)$

9) $-6(1 + 11b)$

10) $-10(a - 5)$

11) $-3(1 + 2v)$

12) $-4(3x + 2)$

13) $(3 - 7k) \cdot -2$

14) $-20(8x + 20)$

15) $(7 + 19b) \cdot -15$

16) $(x + 1) \cdot 14$

Name________________________ 30

Two-Step Equations With Integers (Show all work)

Date________________ Period____

Solve each equation.

1. Draw a line
2. subtract 4 off both sides
3. leaves $\frac{r}{10} = 1$
4. multiply both sides by 10
5. leaves $r = 10$

1) $\frac{r}{10} + 4 = 5$

$-4 \quad | -4$

$\frac{r}{10} = 1$

$\times 10 \quad | \times 10$

$r = 10$

3) $3p - 2 = -29$

4) $1 - r = -5$

5) $\frac{k - 10}{2} = -7$

6) $\frac{n - 5}{2} = 5$

7) $-9 + \frac{n}{4} = -7$

8) $\frac{9 + m}{3} = 2$

9) $\frac{-5 + x}{22} = -1$

10) $4n - 9 = -9$

11) $\frac{x + 9}{2} = 3$

12) $\frac{-12 + x}{11} = -3$

13) $\frac{-4 + x}{2} = 6$

14) $-5 + \frac{n}{3} = 0$