

I will be returning quiz, test corrections and graded classwork. Instead of warm up, tape the papers to the appropriate pages.

Slope-Intercept Form *Applications*

Problems that involve an initial starting value and a constant rate of change can be modeled using a linear equation written in slope-intercept form ($y = mx + b$).

| | |
|-------------------------|---|
| Important Parts! | Rate of change = _____ Initial Value = _____ Independent Variable = _____ Dependent Variable = _____ |
|-------------------------|---|

| | |
|---|---|
| 1 A computer repair shop charges a \$25 fee in addition to \$40 per hour to service a computer. Write an equation to represent the total cost to service a computer. Identify your variables. | a) What is the rate of change? b) What is the initial value? c) What is the independent variable? d) What is the dependent variable? |
| 2 An online photo printing shop charges \$0.15 per print in addition to a \$2.95 shipping charge. Write an equation to model the total cost for printing pictures. Identify your variables. | a) What is the rate of change? b) What is the initial value? c) What is the independent variable? d) What is the dependent variable? |
| 3 Mark bought a season ticket to the ski resort for \$395, however, he must pay \$25 to rent skis each time he goes skiing. Write an equation to model the total cost that Mark will pay for skiing this season. | a) What is the rate of change? b) What is the initial value? c) What is the independent variable? d) What is the dependent variable? |
| 4 Jane bought a car with 23,000 miles on it. She determined that she typically drives 12,000 miles per year. Write an equation to show the number of miles on Jane's car after each year she drives it. | a) What is the rate of change? b) What is the initial value? c) What is the independent variable? d) What is the dependent variable? |

Directions: Read each problem, write an equation, then solve using your equation.

- 5 A truck rental company charges \$19.95 to rent a truck plus \$0.24 per mile driven. Find the cost to rent a truck and drive 188 miles.

- 6 Eva started a savings account with \$500. If she plans to save \$75 each month, find the total balance after 2 years.

$$y = 75x + 500$$

$$75(24) + 500$$

2300

- 7 At the beginning of Jack's diet, he was 257 pounds. If he lost 3 pounds per week, find his weight after 12 weeks.

$$y = 257 - 3x$$

$$257 - 3(12)$$

221

- 8 It costs \$5 for a membership to Top Golf, then \$35 per hour to golf. If Max paid \$127.50 during his first trip to Top Golf, how many hours did he play?

$$127.50 = 35x + 5$$

3.5

- 9 A hot-air balloon at 1,400 feet descends at a rate of 75 feet per minute. Find the time it will take the hot-air balloon to reach the ground.

$$y = 75x$$

$$1400 = 75x$$

18.6

- 10 It costs \$25 to rent a kayak in addition to \$7.50 per hour. Logan rented the kayak at 11:00 a.m. then returned it later that evening. If he paid \$70, what time did he return the kayak?

$$y = 7.50x + 25$$




$$70 = 7.50x + 25$$

6 hrs
5pm

Slope

Slope is the **ratio** of the **rise** (y-value) to the **run** (x-value)

$$m = \frac{\text{Rise}}{\text{Run}}$$

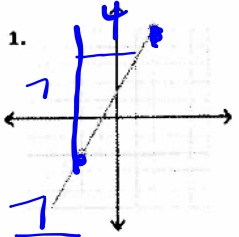
| Types of Slope | | |
|---|---|--|
|  |  |  |
| Positive | negative | zero |

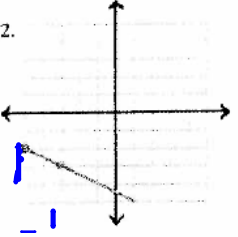
Finding slope given a graph!

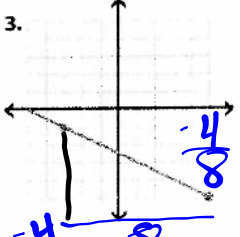
Count the number up or down,
Count the number left or right.

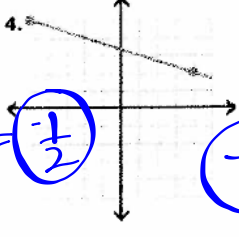
(up is positive, down is negative)
(right is positive, left is negative)

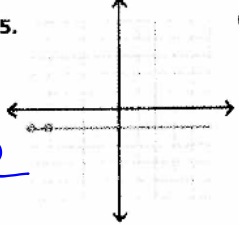
$$m = \frac{\text{rise}}{\text{run}}$$

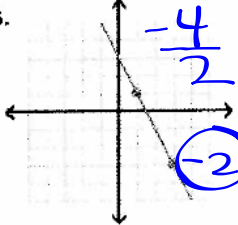
1.  $m = \frac{7}{4}$

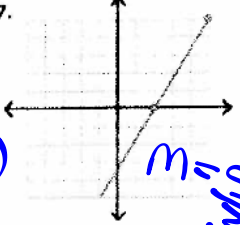
2.  $-\frac{1}{2}$

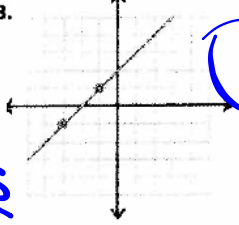
3.  $-\frac{4}{8} = -\frac{1}{2}$

4.  $-\frac{3}{9}$

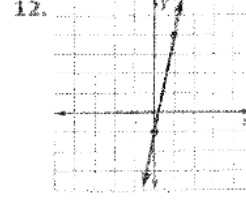
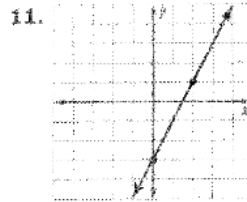
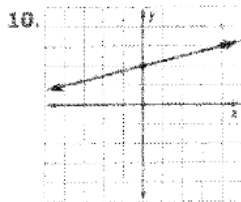
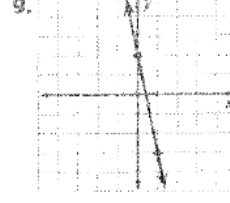
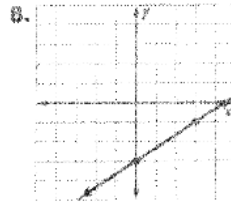
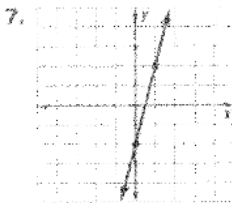
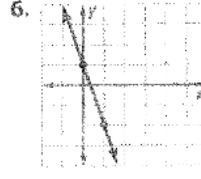
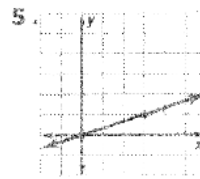
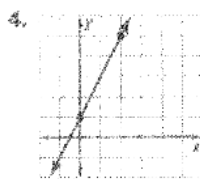
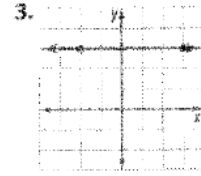
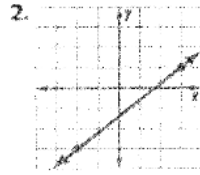
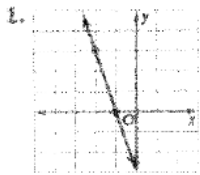
5.  0

6.  $-\frac{4}{2} = -2$

7.  $m = \frac{4}{4} = 1$

8.  1

Find the slope of the line which passes through the two points. Reduce if needed!



Compare your answers to number 10, 11, and 12. What do you notice about each line compared to the slope? What do you notice about slopes that are fractions less than one? What do you notice about slopes that are larger than one?

Name: _____ Unit 3: Functions & Linear Equations

Date: _____ Bell: _____ Slope and Independent vs Dependent

Identify the independent and dependent variable in each of the scenarios

The battery life on your cell phone, and the amount of time you spend texting.

| Independent variable/x-value | Dependent variable/ y-value |
|------------------------------|-----------------------------|
| time text | battery |

How long you spend reading, and the page number you are on.

| Independent variable/x-value | Dependent variable/ y-value |
|------------------------------|-----------------------------|
| time Read | Page |

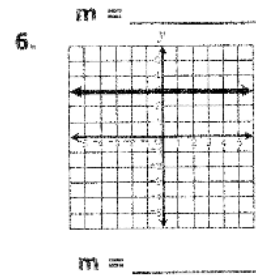
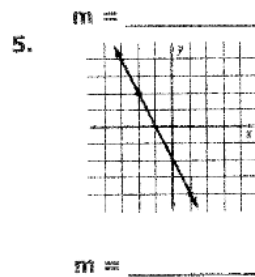
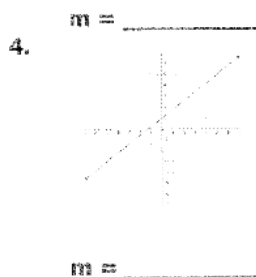
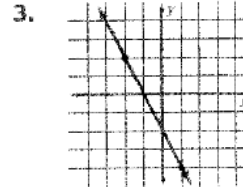
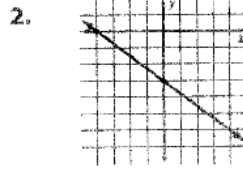
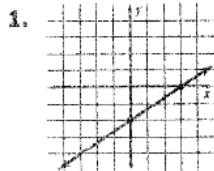
How strong you are and the amount of time you spend working out.

| Independent variable/x-value | Dependent variable/ y-value |
|------------------------------|-----------------------------|
| time working out | Strong |

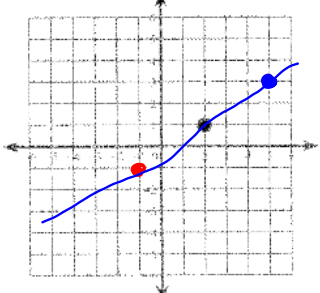
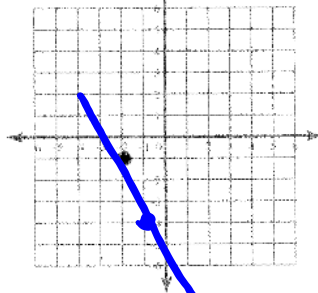
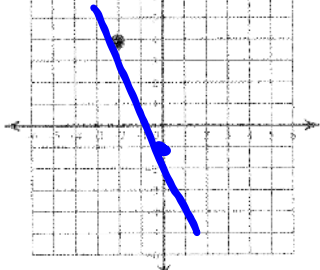
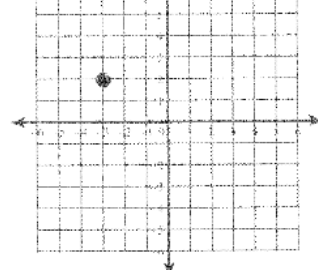
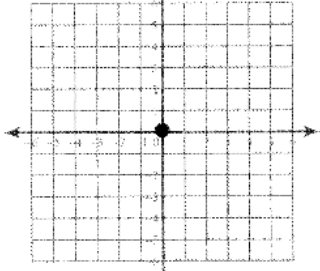
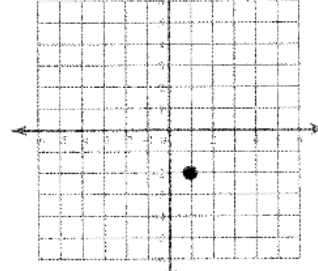
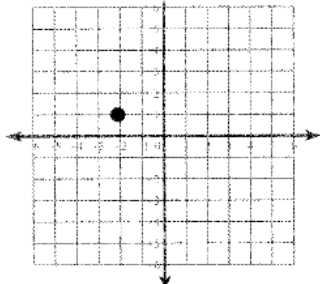
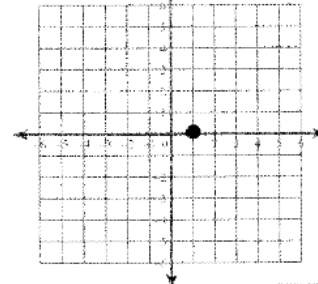
How tired you are and the amount of sleep you had last night.

| Independent variable/x-value | Dependent variable/ y-value |
|------------------------------|-----------------------------|
| Sleep | tired |

Given the graph, find the slope of the line.



Graph each line given a point and a slope.

| | |
|--|--|
| <p>7.</p> <p>$m = \frac{2}{3}$</p>  | <p>8.</p> <p>$m = -3$</p>  |
| <p>9.</p> <p>$m = -\frac{5}{2}$</p>  | <p>10.</p> <p>$m = -\frac{3}{4}$</p>  |
| <p>11.</p> <p>$m = \frac{1}{2}$</p>  | <p>12.</p> <p>$m = -1$</p>  |
| <p>13.</p> <p>$m = \frac{4}{5}$</p>  | <p>14.</p> <p>$m = 3$</p>  |

SOL 7.10a Practice ProblemsRemember: slope = $\frac{\text{change in } y}{\text{change in } x} = \frac{\text{vertical change}}{\text{horizontal change}}$

1. Determine the slope, m , of the proportional relationship.

| x | y |
|-----|-----|
| 1 | 4 |
| 2 | 8 |
| 3 | 12 |

2. Write an equation in $y = mx$ based on the information above.

3. Determine the slope, m , of the proportional relationship.

| x | y |
|-----|-----|
| 6 | 4 |
| 9 | 6 |
| 12 | 8 |

4. Write an equation in $y = mx$ based on the information above.

5. Determine the slope, m , of the proportional relationship.

| x | y |
|-----|-----|
| -3 | -3 |
| -1 | -1 |
| 2 | 2 |

6. Write an equation in $y = mx$ based on the information above.

Equation:

7. The ordered pairs (2, 6) and (4, 12) make up points that could be included on the graph of a proportional relationship. Determine the slope, or rate of change, of a line passing through these points.

m=

8. Write an equation in $y = mx$ based on the information above.

Equation:

9. The ordered pairs (-5, -1) and (10, 2) make up points that could be included on the graph of a proportional relationship. Determine the slope, or rate of change, of a line passing through these points.

m=

10. Write an equation in $y = mx$ based on the information above.

Equation:

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

| | x | y | |
|-------|---|----|-------|
| x_1 | 1 | 4 | y_1 |
| x_2 | 2 | 8 | y_2 |
| | 3 | 12 | |

$$m = \frac{8-4}{2-1} = \frac{4}{1}$$

$m = 4$

$$y = 4x$$

| | x | y |
|-------|----|---|
| x_1 | 6 | 4 |
| x_2 | 9 | 6 |
| | 12 | 8 |

$$\frac{6-4}{9-6} = \frac{2}{3}$$
$$m = \frac{2}{3}$$
$$y = \frac{2}{3}x$$

IXL 7th Grade

V.1, V.2, V.3

Smart Score 90