

NOTES & HOMEWORK

Name _____
Date _____ Period _____

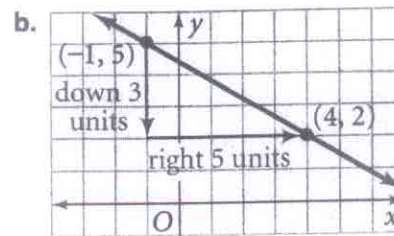
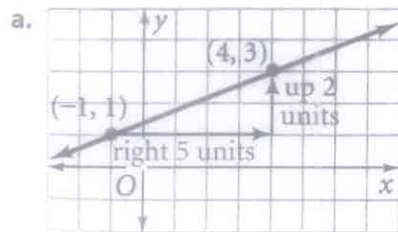
More Practice with Slope

Slope Formula:

$$\text{Slope} = \frac{\text{change in } y}{\text{change in } x} = \frac{y_2 - y_1}{x_2 - x_1} = \frac{\text{rise}}{\text{run}}$$

Example 1:

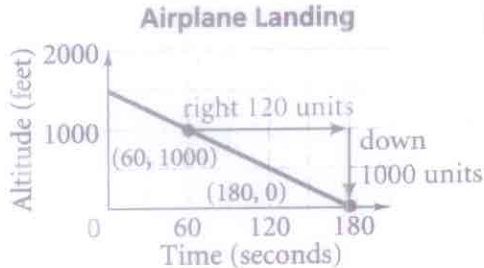
Find the slope of each line.



Example 2:

The graph models the altitude of an airplane from the time the wheels are lowered (time = 0 seconds) to when the plane lands. Find the slope of the line. Explain what the slope means in this situation.

Find any two points on the graph. Use the points to find the slope.



Suppose a graph of a line with slope 12 indicates the relationship between altitude and time for another airplane. What would the slope mean in this situation?

Example 3:

Find the slope of a line through A(-2, 1) and B(5,7).

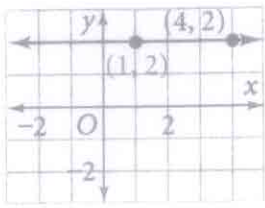
$$\text{Slope} = \frac{y_2 - y_1}{x_2 - x_1} =$$

Now find the slope of C(4,0) and D(-1,5).

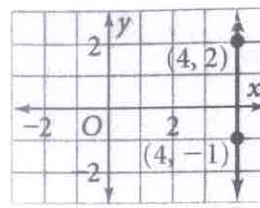
Example 4:

Find the slope of each line using the points shown.

a.)



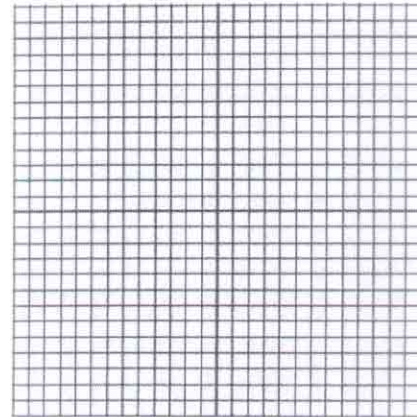
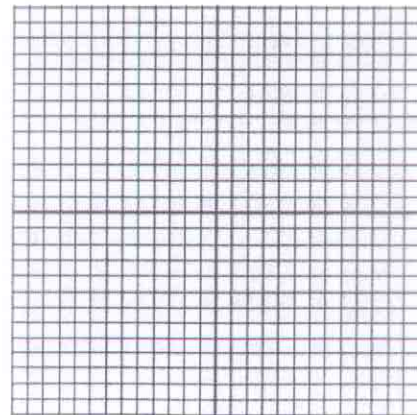
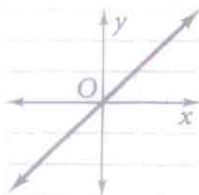
b.)

**Example 5:**Draw a line through point $(1, 2)$ with a slope $-\frac{3}{2}$

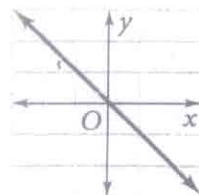
a.) Plot the point.

b.) Draw a slope triangle using $-\frac{3}{2}$

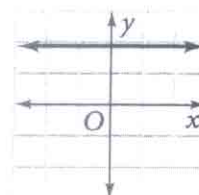
c.) Draw a line through the points.

What are the coordinates of the 2nd point?Now graph the line through point $(2, -3)$ with a slope of $\frac{5}{4}$ **Recall:****Slope of Lines**

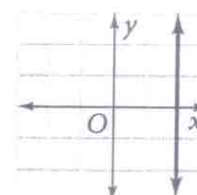
A line with positive slope goes upward from left to right.



A line with negative slope goes downward from left to right.



The slope of a horizontal line is 0.



The slope of a vertical line is undefined.

Homework

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Find the slope of the line passing through each pair of points:

1.) $(-8, 0), (1, 5)$

2.) $(8, 3), (-4, 3)$

3.) $(-4, -5), (-9, 1)$

4.) $(\frac{1}{2}, 8), (1, -2)$

5.) $(4, -1), (4, 7)$

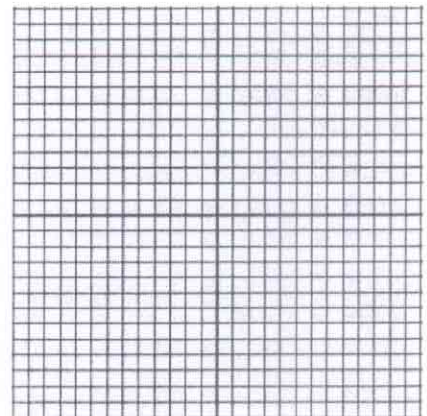
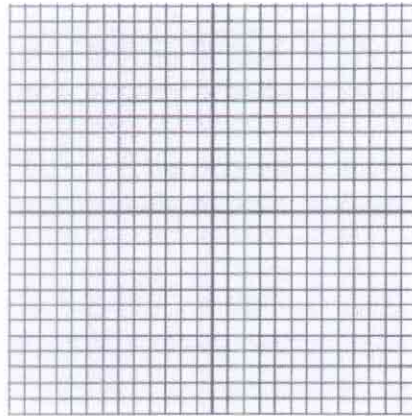
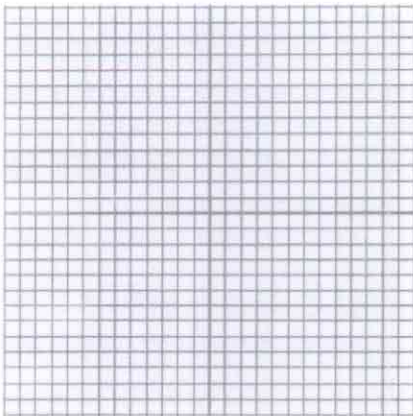
6.) $(9, -2), (3, 4)$

Through the given point, graph a line with the given slope.

1.) $(3, 4)$; Slope = $\frac{1}{2}$

2.) $(-2, 1)$; Slope = -2

3.) $(0, 3)$; Slope = 0



Tell whether each statement is *true* or *false* and explain your answer.

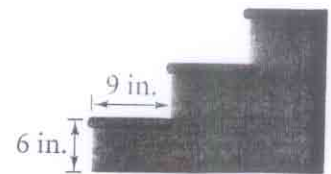
1.) All horizontal lines have the same slope.

2.) Two lines may have the same slope.

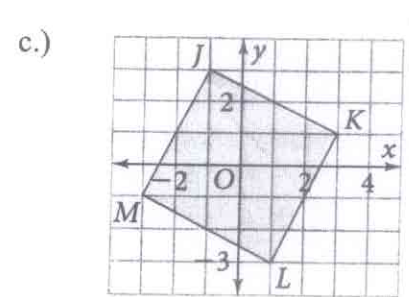
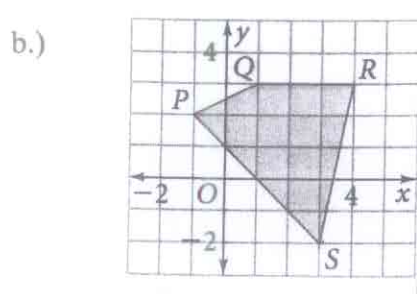
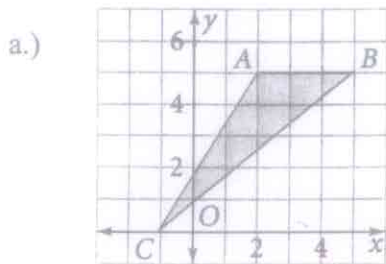
3.) The slope of a line in Quadrant III must be negative.

Tell whether the slope would *increase*, *decrease*, or *remain the same*.

- 1.) The rise of each step increase 1 in.
- 2.) The run of each step decrease 1 in.
- 3.) The rise and run both increase 1 in.



Fine the slope of the sides of each figure.



Do the points lie on the same line?

Sample: A(1, 3), B(4, 2), C(-2, 4)

$$\text{Slope } AB = \frac{2-3}{4-1} = -\frac{1}{3}$$

$$\text{Slope } BC = \frac{4-2}{-2-4} = \frac{2}{-6} = -\frac{1}{3}$$

Lines AB and BC have the same slope. So, the points lie on the same line.

1. A(3, 5), B(-1, 3), C(7, 7)

2. P(4, 1), Q(-1, 5), R(1, 2)

3. L(6, 4), M(3, 2), N(0, 0)

The graph shows how much it costs to rent carousel equipment for a fair. Rental includes the cost of an operator.

- a. Estimate the slope of the line. What is the real-world meaning of this number?



- b. Customers pay \$2 for a ride. What is the number of customers needed per hour to cover the rental cost?

A friend says the slope of the line passing through (1, 7) and (3, 9) is equal to the ratio $\frac{1-9}{7-3}$

Is this correct? Explain.