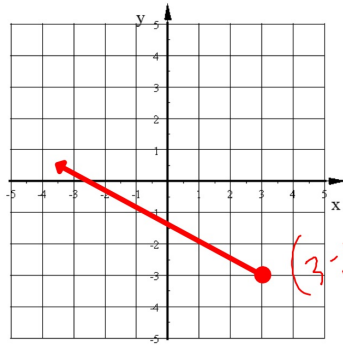6. State the domain and range for each.

   a) (7,3),(-2,8),(4,9),(6,3),(-2,-2)

   $D: -2,4,6,7 \quad R: -2,3,8,9$

   b)

   $D: x \leq 3$

   $(3,-3)$

   $R: y \geq -3$

7. Model each situation with a function rule.

   a) Model the number of minutes $m(s)$ if you have time measured in seconds, s

   $$m(s) = \frac{s}{60}$$

   b) The perimeter $P(s)$ of an equilateral triangle if you know the length of a side, s.

   $$P(s) = 3s = s + s + s$$

   c) The amount of money you owe $C(m)$ if you have to pay the tow truck driver $50 to come to your house then $3 per mile, m, to tow your car to the repair shop.

   $$C(m) = 50 + 3m$$
   $$C(m) = 3m + 50$$

$$\text{Slope} = \frac{\text{Rise}}{\text{Run}} = \frac{\text{Vertical Change}}{\text{Horizontal Change}} = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$$

1. Find the slope of the line that passes through these two points:

   (-7, -3) and (8, -8)

   $\Delta x \quad \#r$
   $\#1 \quad \#2$

   $$\frac{y_2 - y_1}{x_2 - x_1} = \frac{-3 + 8}{-7 - 8} = \frac{5}{-15}$$
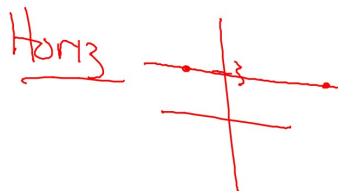
   $$\frac{-8 + 3}{8 - -7} = \frac{-5}{15}$$

   $$\boxed{-\frac{1}{3}}$$

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

2. (8,3) and (-2,3)

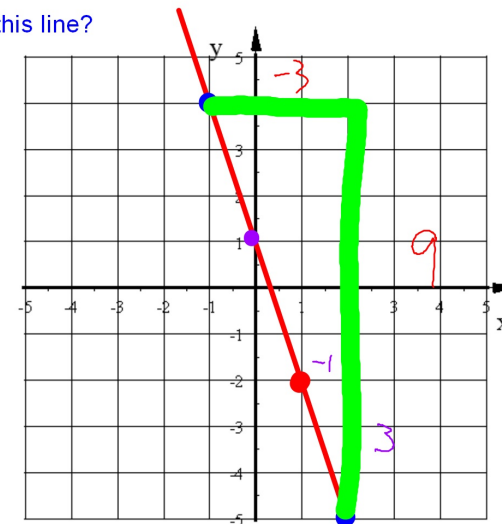$m = \dfrac{0}{\quad} = 0$

Horiz

3. (-2,7) and (-2,1)

$\overline{0}$

m is undefined

Vertical

$m = \dfrac{7-1}{-2+2}$

What is the slope of this line?

m = NEG

$= \dfrac{9}{-3}$

$\boxed{m = -3}$

-3

9

-1
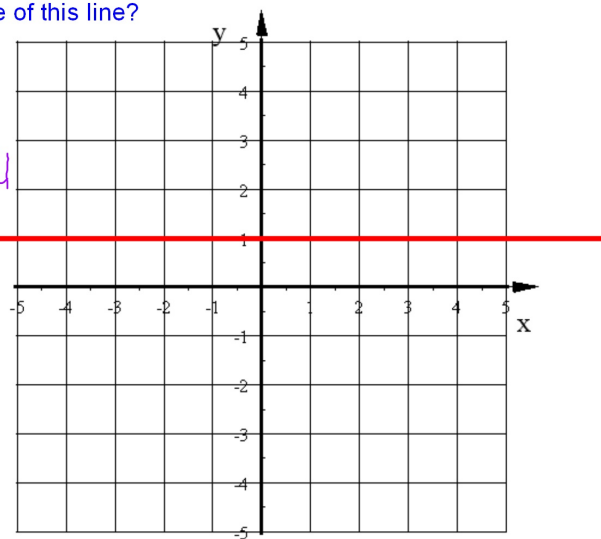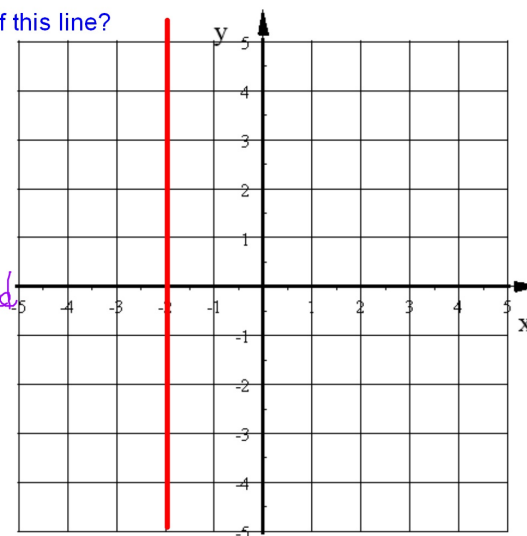
3

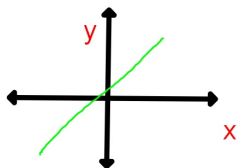What is the slope of this line?

Horizontal

m = 0
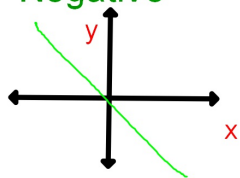
What is the slope of this line?

m = undefined
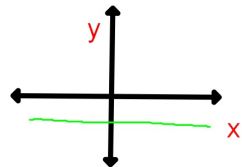
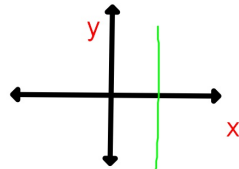## What are the four different kinds of slope?

Positive

Negative

Zero

Undefined

The larger the slope, the steeper the line

larger pos
or larger neg.

The closer the slope is to zero the flatter the line is.

Put the slopes in order from steepest to flatest.

$$-2 \ , \ 0.8 \ , \ \frac{7}{3} \ , \ -9 \ , \ 6.4 \ , \ -\frac{1}{7} \ , \ -2.5$$

$$-9 \quad 6.4 \quad -2.5 \quad \frac{7}{3} \quad -2 \quad 0.8 \quad -\frac{1}{7}$$

Do the Investigation on Page 282 in pairs.

Algebra 1 books are under the
graphing calculators on the left.

Investigation: Exploring Rate of Change

The diagram at the right shows the side view of a ski lift.

1. What is the vertical change from A to B? From B to C? From C to D?

2. What is the horizontal change from A to B? From B to C? From C to D?

3. Find the ratio of the vertical change to the horizontal change for each section of the ski lift.

4. Which section is the steepest? Explain.
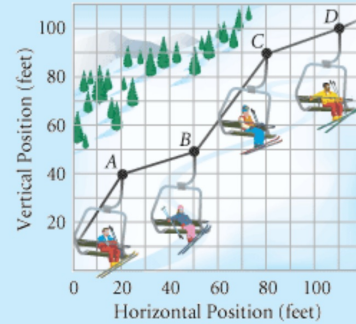
Rate of Change = $\dfrac{\text{Change in the Dependent Variable}}{\text{Change in the Independent Variable}}$

Rate of Change = $\dfrac{\triangle Y}{\triangle X}$ Slope with units

Since the phrase Rate of Change applies when using "REAL" data you'll be expected to give units with your answer.

Don't confuse Rate of Change with Direct Variation

$$\frac{y_2 - y_1}{x_2 - x_1} \quad \text{NOT} \quad \frac{y}{x}$$