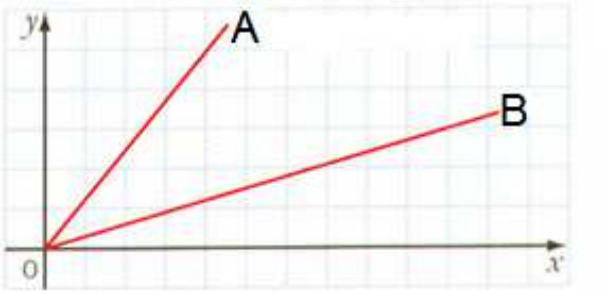
Date: _____

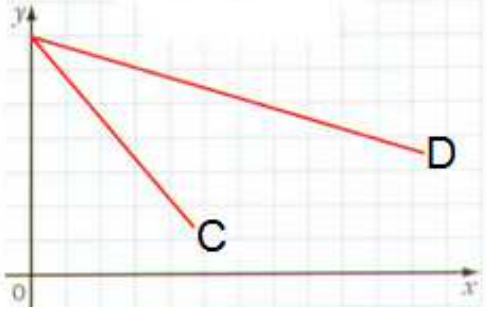
Slope – Part 1

Use the provided graphs to answer the questions below.

Graph 1



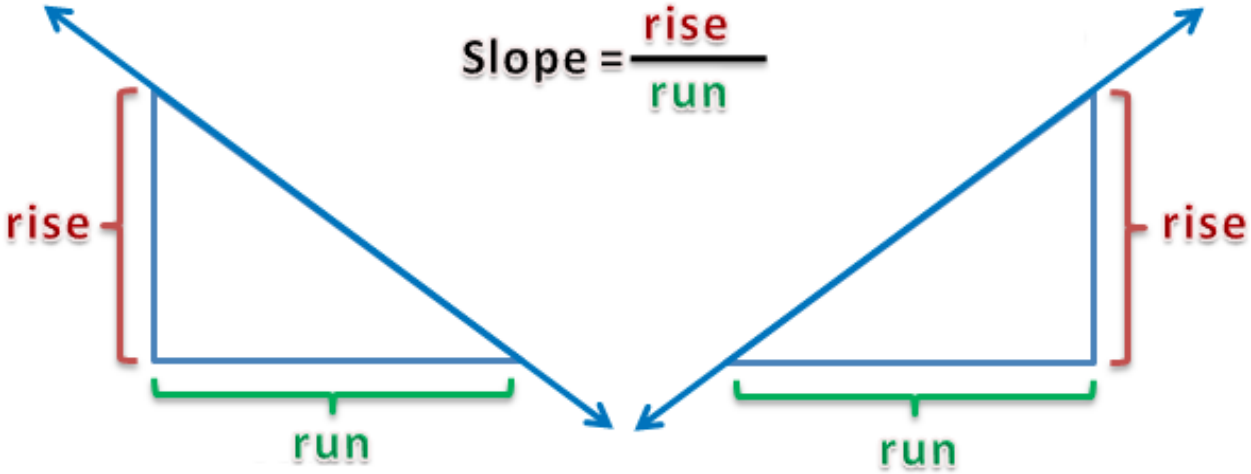
Graph 2



1. Among the lines in Graph 1, which one is steepest? _____
2. Among the lines in Graph 2, which one is steepest? _____
3. A skier gets off the ski lift at the top of a mountain and considers the different runs for his descent.
   a) Which graph best represents this situation? _____
   b) If the skier chooses to take the expert run instead of the beginner run, which line best represents his descent? _____

Slope is a measure of steepness.

How can we define slope?



Using our definition...

What would the slope of the ground be? _____

What would the slope of the wall be? _____

Convention:

Big Idea

Steeper = bigger slope

Flat = zero slope

Vertical = undefined slope

Positive = up to the right

Negative = down to the right

Slope:

The rate of change of y (the dependent variable) compared to x (the independent variable).

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

$$\text{change in "y"} \rightarrow \frac{\Delta y}{\Delta x} \leftarrow \text{change in "x"}$$

For example:

If we graph the relationship between:

a) distance driven and time, the slope represents the speed (rate of change of distance over time)

b) total cost of texting and number of messages sent (on pay-as-you-go plan), the slope represents the cost per text

c) money earned babysitting and number of hours, the slope represents how much you make per hour (hourly rate)

A. Determining slope from a graph.

1. Draw a slope triangle and label the rise and run.
2. Count the units...

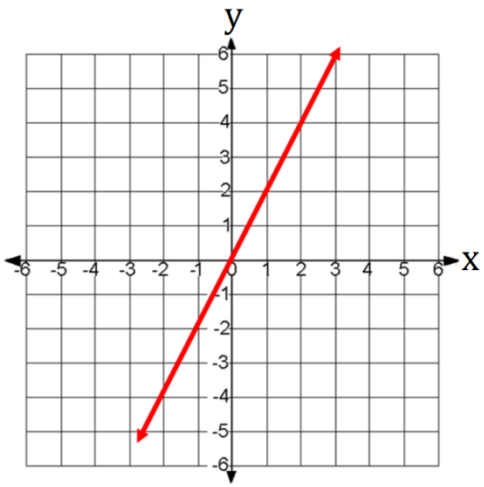
   rise = _____

   run = _____
3. Positive or negative?
4. Calculate the slope.

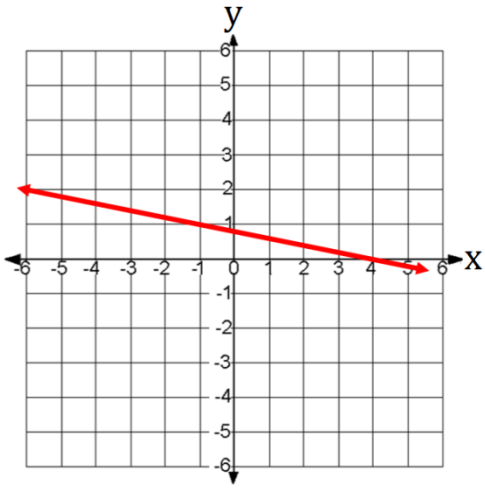
Example 1

Determine the slope from the graph.

a)



b)



B. Determining slope given 2 points.

Example 2

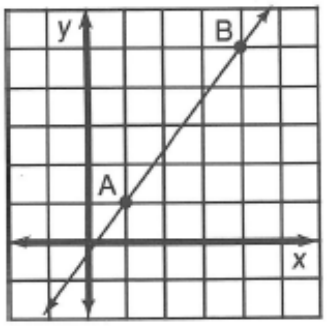
Determine the slope of the line that passes through the points.

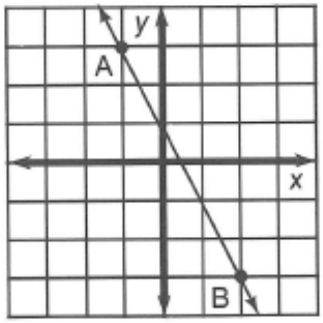
a) A(3,5) and B(7,10) b) C(−1, −5) and D(6, −7) c) E(7, −3) and F(5, −9)

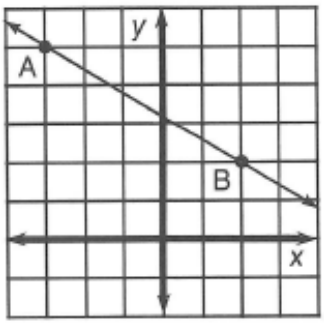
Homework

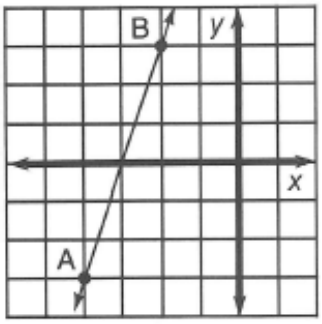
What Do You Call a Duck That Steals?

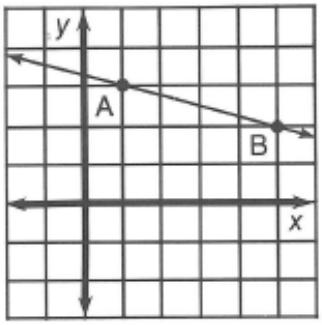
For the first six exercises, find the slope of the line $\overleftrightarrow{AB}$. For the remaining exercises, find the slope of the line that passes through the two given points. Cross out each box in the rectangle below that contains a correct answer. When you finish, print the letters from the remaining boxes in the spaces at the bottom of the page.

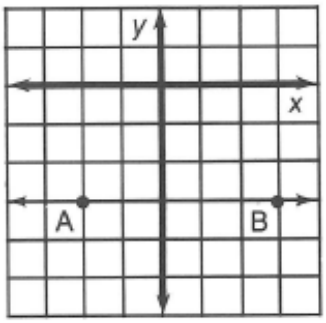
1. 

2. 

3. 

4. 

5. 

6. 

7. (2, 1); (5, 3)
8. (8, 3); (2, 5)
9. (1, −4); (6, −2)
10. (−3, 1); (−7, 4)
11. (9, 2); (3, −1)
12. (−5, 8); (−4, 2)
13. (0, −1); (4, −7)
14. (1, −1); (−2, −6)
15. (−4, −8); (−2, 0)
16. (−3, −3); (0, 0)
17. (2, 5); (9, 1)
18. (0, 0); (−2, 7)

DU 0	AB −6	CK $-\frac{3}{5}$	ST $-\frac{4}{7}$	AR 9	IG $\frac{1}{2}$	AT $-\frac{7}{2}$	OB $-\frac{7}{6}$	IG $\frac{4}{3}$	ET $\frac{2}{3}$	BE $-\frac{5}{4}$	ST $\frac{5}{3}$
CA $\frac{2}{5}$	RD $\frac{1}{6}$	RI $-\frac{1}{4}$	CH −2	UC −8	RI $-\frac{3}{2}$	ME 1	AQ $-\frac{1}{3}$	UA $-\frac{3}{4}$	KY $\frac{8}{5}$	ET 4	CK 3