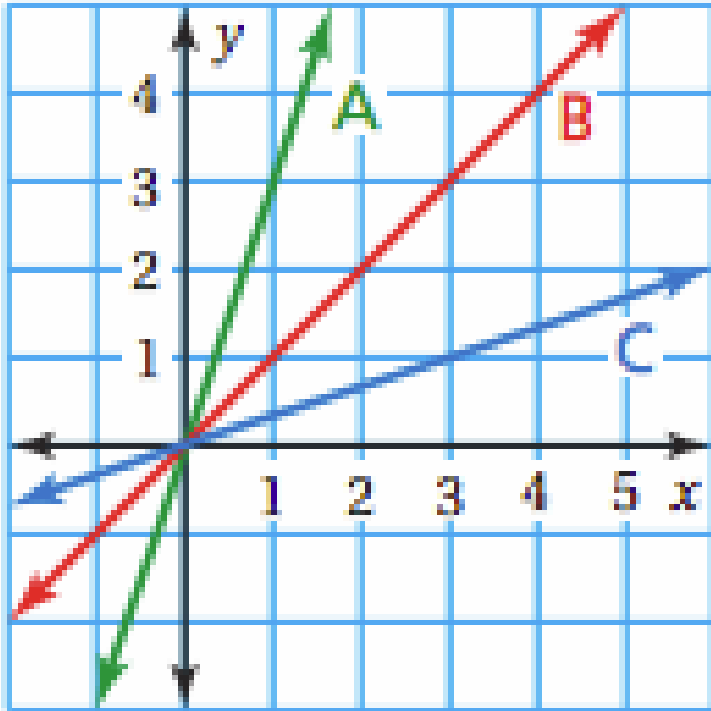


14.6

Direct Variation

Do Now

1) Which line has the greater slope? How do you know?



Do Now

- 2) Is it more difficult to run up a ramp with a $\frac{1}{5}$ slope of or a ramp with a slope of 5? Explain.

What is it and how do I know when I see it?

x	y
1	3
2	6
3	9
4	12

A direct variation is a relationship between two sets of numbers.

You can tell this when there are equivalent ratios you can write from the second number and the first number.

The simplified ratio of the set of numbers is called the constant of proportionality.

What is it and how do I know when I see it?

x	y
1	3
2	6
3	9
4	12

You can write the ratio of the constant of proportionality as

$$k = \frac{y}{x}$$

What is the constant of proportionality for the example on the left?

Translating into words...

$$y = kx$$

Practice`

x	y
6	12
7	14
8	16

1) What is the constant of variation of the table above?

Practice`

x	y
10	30
5	15
3	9

2) What is the constant of variation of the table above?

Practice`

x	y
-4	-1
-16	-4
-40	-10

3) What is the constant of variation of the table above?

Practice`

x	y
4	-8
8	-16
-6	12
3	-6

4) What is the constant of variation of the table above?

Practice`

x	y
4	6
8	12
12	18
18	27

5) Is this a direct variation? If yes, give the constant of variation.

Practice

6) Which of the following is a direct variation?

A

x	y
4	-8
8	-16
-6	12
3	-6

B

x	y
8	-9
4	-18
-3	24
-8	9

C

x	y
10	20
1	2
12	6
20	10

D

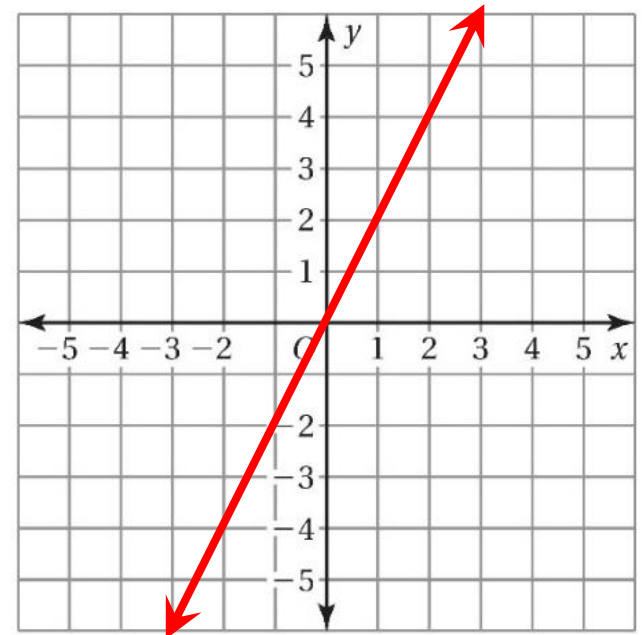
x	y
-3	6
4	8
-5	10
6	12

How can you tell if the graph is a direct variation?

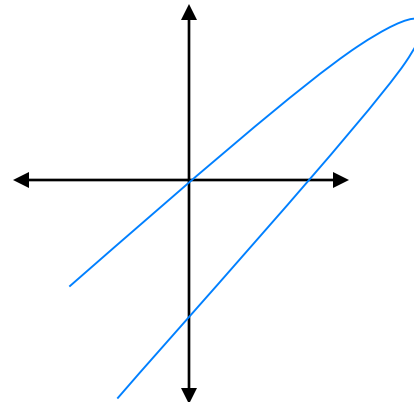
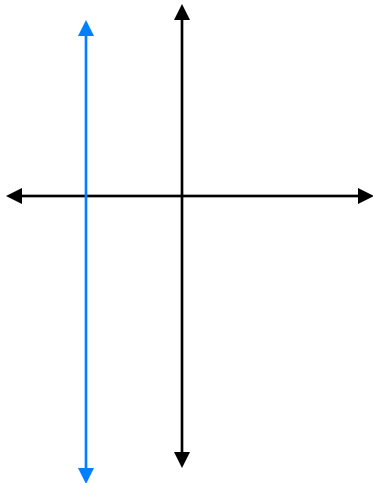
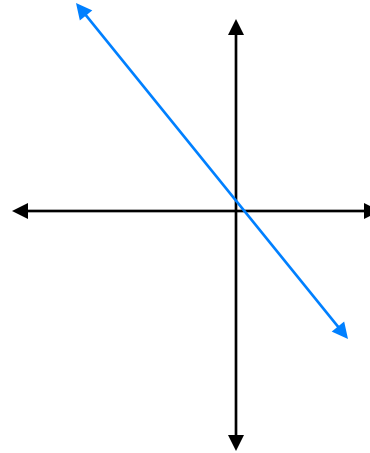
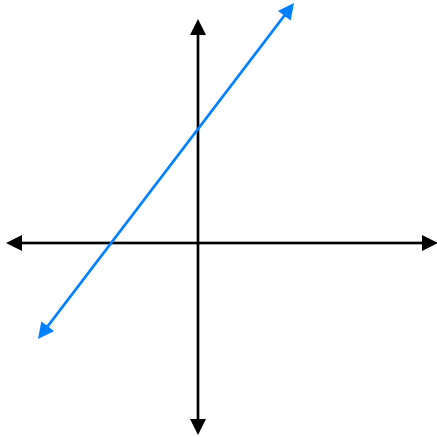
a) _____

b) _____

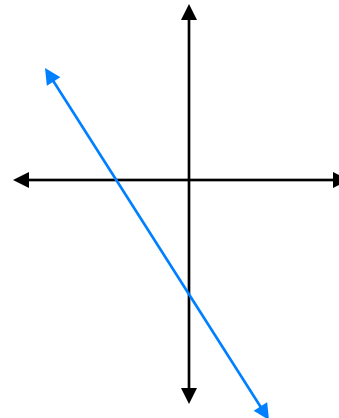
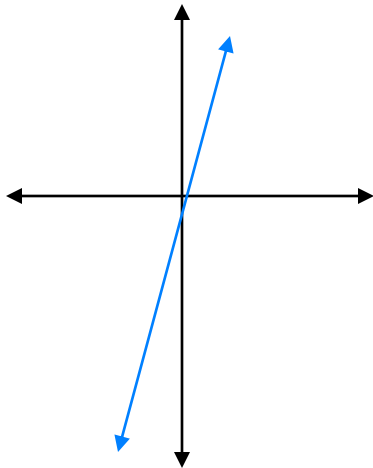
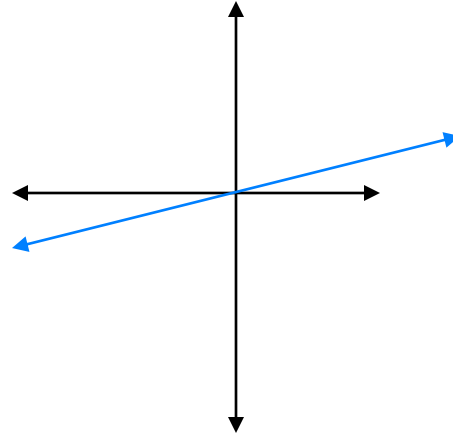
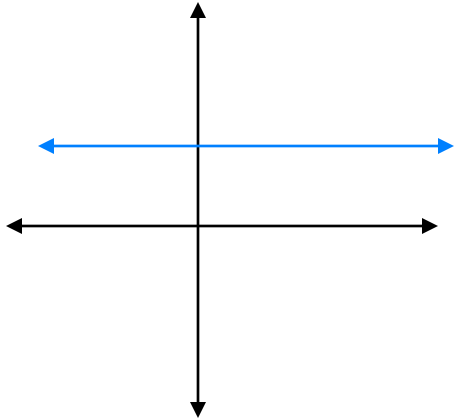
c) _____



Tell if the following graph is a Direct Variation or not.



Tell if the following graph is a Direct Variation or not.



Identifying Direct Variation by Its Graph

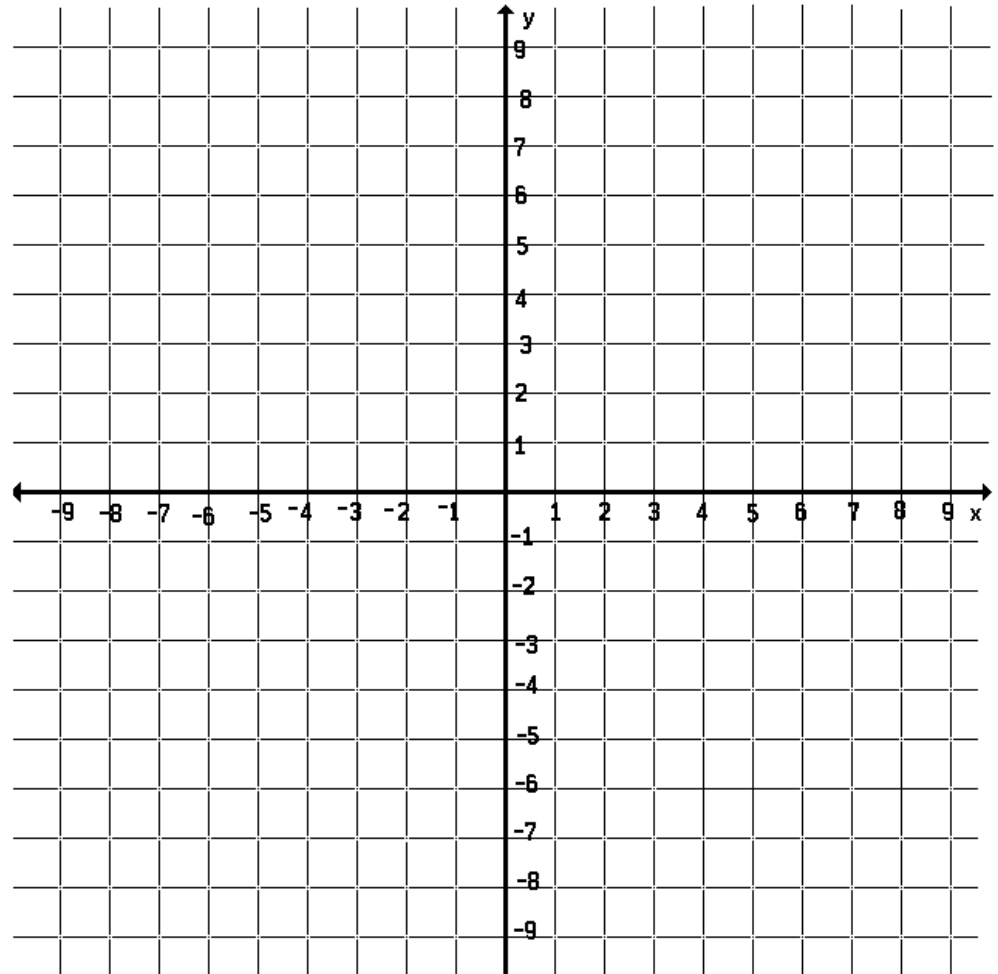
Tell whether x and y show direct variation. Explain your reasoning.

x	y
-2	-8
-1	-4
1	4
2	8

- Plot the points.
- Draw a line through the points.
- Explain.

Identify the slope =

Identify the constant of variation =



Identifying Direct Variation by Its Graph

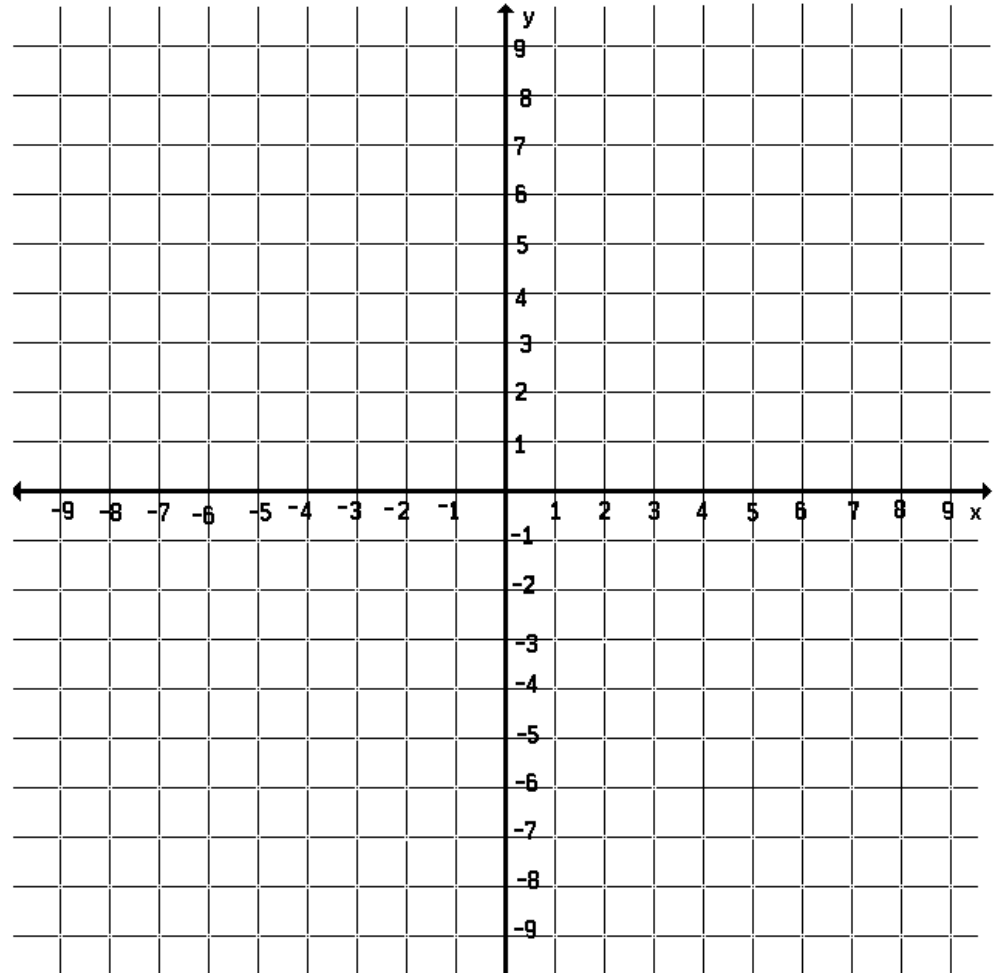
Tell whether x and y show direct variation. Explain your reasoning.

x	1	2	3	4
y	-2	0	2	4

- Plot the points.
- Draw a line through the points.
- Explain.

Identify the slope =

Identify the constant of proportionality =



Identifying Direct Variation by Its Graph

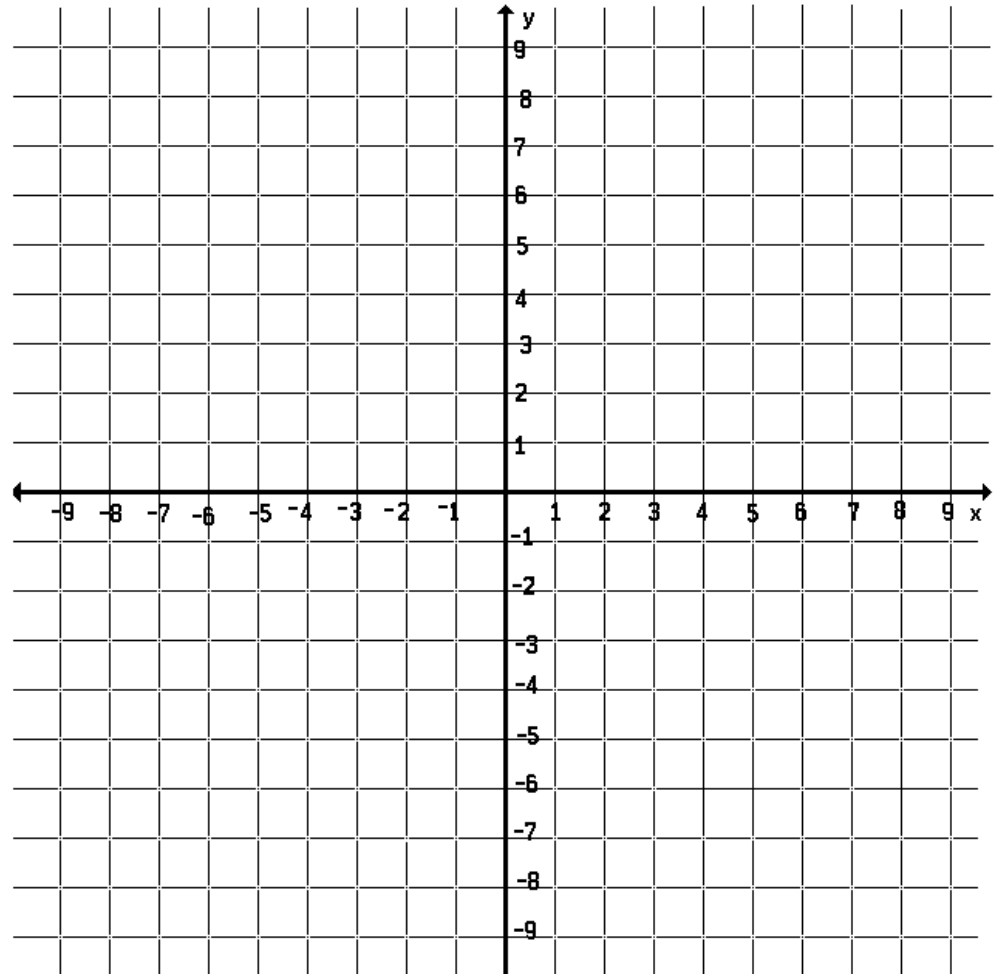
Tell whether x and y show direct variation. Explain your reasoning.

x	0	2	4	6
y	0	2	4	6

- Plot the points.
- Draw a line through the points.
- Explain.

Identify the slope =

Identify the constant of proportionality =



Identifying Direct Variation

Tell whether x and y show direct variation. Explain your reasoning.

a) $y + 1 = 2x$

b) $y = x$

- Can the equation be written as $y = kx$?
- If yes, then x and y show direct variation.
- If no, then x and y do not show direct variation.

Practice

- Can the equation be written as $y = kx$?
- If yes, then x and y show direct variation.
- If no, then x and y do not show direct variation.

Tell whether x and y show direct variation. Explain your reasoning.

1) $xy = 3$

2) $y + 3 = x$

3) $y = \frac{1}{3}x$

Finding the Equation of Direct Variation

The variables x and y vary directly. Use the values to find the **constant of proportionality**. Then write an equation that relates x and y .

4) $y = 72; x = 3$

5) $y = 20; x = 12$