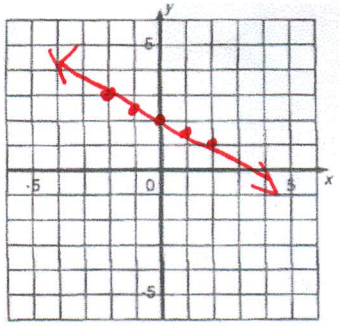
Key

Review graphs, direct and inverse variation

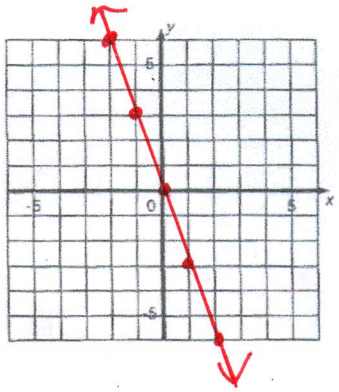
Graph each equation. Make a table with a domain of { - 2, -1, 0, 1, and 2 }.

1. $y = -\frac{1}{2}x + 2$



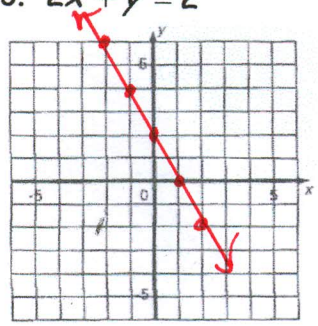
x	y
-2	3
-1	2.5
0	2
1	1.5
2	1

2. $y = -3x$



x	y
-2	6
-1	3
0	0
1	-3
2	-6

3. $2x + y = 2$



x	y
-2	6
-1	4
0	2
1	0
2	-2

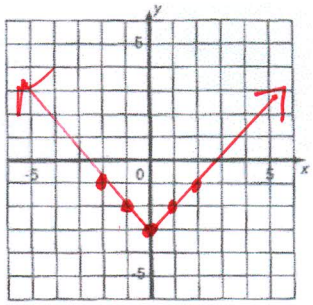
$2(-2)+y=2$

$-4+y=2$

$+4 \quad +4$

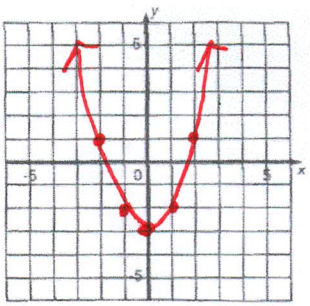
$y=6$

4. $y = |x| - 3$



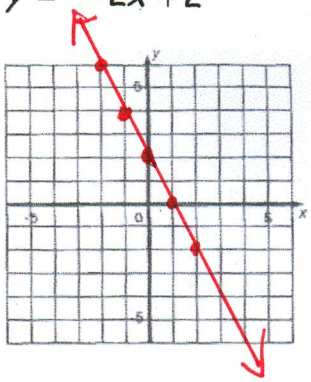
x	y
-2	-1
-1	-2
0	-3
1	-2
2	-1

5. $y = x^2 - 3$



x	y
-2	1
-1	-2
0	-3
1	-2
2	1

6. $y = -2x + 2$



x	y
-2	6
-1	4
0	2
1	0
2	-2

Determine if each equation is a <u>direct variation</u>. If it is, find the constant of variation.

7. $2y = 5x + 1$

$y = \frac{5}{2}x + \frac{1}{2}$

NO

8. $5x - 6y = 0$

$y = +\frac{5}{6}x$

yes ; $+\frac{5}{6}$

9. $2x + y = 2$

$y = 2 - 2x$

NO

Write an equation of the <u>direct variation</u> that includes the given point.

10. (12, -8)

$k = -\frac{2}{3}$

$y = -\frac{2}{3}x$

11. (10, 5)

$k = \frac{1}{2}$

$y = \frac{1}{2}x$

12. (-4, 6)

$k = -\frac{3}{2}$

$y = -\frac{3}{2}x$

The ordered pairs below are for the same direct variation. Find the missing value.

$y = kx$

13. (2,5) and (x, 12) — 15

$k = \frac{5}{2}$

$y = \frac{5}{2}x$

$6 = x$

1. find k
2. write Eq.
3. substitute

14. (- 1,3) and (5, y)

$k = -3$

$y = -3x$

$k = -15$

15. (- 2, 4) and (x, 3) — 6

$k = -2$

$y = -2x$

$x = -3$

Suppose y varies inversely with x. Write an equation for the inverse variation.

16. y = 6 when x = 3

$xy = 18$

17. y = 10 when x = 2

$xy = 20$

18. y = - 4 when x = - 1

$xy = 4$

Each pair of points is on the graph of an inverse variation. Find the missing value.

$xy = k$

19. (6, 12) and (9, y)

$xy = 72$

$y = 8$

1. find k
2. write Eq
3. substitute

20. (4, 3) and (x, 12)

$xy = 12$

$x = 1$

21. (- 2, 4) and (x, 2) — 3

$xy = -8$

$x = -4$

Does each set of data in the table represent a direct or inverse variation? Write an equation to model the data.

22.

x	y
2	1
5	2.5
8	4

Direct

$y = \frac{1}{2}x$

$\frac{1}{2} = \frac{1}{2}$

$\frac{2.5}{5} = \frac{1}{2}$

$4/8 = \frac{1}{2}$

23.

x	y
4	15
6	10
10	6

INVERSE

$xy = 60$

$4 \cdot 15 = 60$

$6 \cdot 10 = 60$

$10 \cdot 6 = 60$

24.

x	y
3	24
9	8
12	6

INVERSE

$xy = 72$

$3 \cdot 24 = 72$

$9 \cdot 8 = 72$

$12 \cdot 6 = 72$

25. What is the independent variable?

x

26. What is the dependent variable?

y

27. In a direct variation or an inverse variation, what does *k* represent?

the Constant