

# Chapter 4 § 4

## Equations as Relations

Which ordered pairs are solutions of each equation?

$$3x + 3y = 0$$

a. ( 1 , -1 ) b. ( 2 , -2 ) c. ( -1 , 1 ) d. ( -3 , 2 )

a. ( 1 , -1 )

b. ( 2 , -2 )

$$3x + 3y = 0$$

$$3x + 3y = 0$$

$$3(1) + 3(-1) = 0$$

$$3(2) + 3(-2) = 0$$

$$3 + -3 = 0$$

$$6 + -6 = 0$$

$$0 = 0$$

$$0 = 0$$

c. ( -1 , 1 )

d. ( -3 , 2 )

$$3x + 3y = 0$$

$$3x + 3y = 0$$

$$3(-1) + 3(1) = 0$$

$$3(-3) + 3(2) = 0$$

$$-3 + 3 = 0$$

$$-9 + 6 = 0$$

$$0 = 0$$

$$-3 \neq 0$$

Thus the answer is a, b, and c.

Solve each equation if the domain is  $\{-3, -2, 0, 3, 6\}$

$$5x + 3 = y$$



x	$5x + 3 = y$	y	(x, y)
-3	$5(-3) + 3 = y$	-12	(-3, -12)
-2	$5(-2) + 3 = y$	-7	(-2, -7)
0	$5(0) + 3 = y$	3	(0, 3)
3	$5(3) + 3 = y$	18	(3, 18)
6	$5(6) + 3 = y$	33	(6, 33)

Given the fact that the domain is -3, -2, 0, 3, & 6, then the range is -12, -7, 3, 18, & 33.

$$R = \{-12, -7, 3, 18, 33\}$$

Spice

**Back by Popular Demand.**

**Make a Table and Graph the solution set.**

$$y = 3x + 1 \text{ for } x = \{-3, -2, -1, 0, 1, 2, 3\}$$

<b>x</b>	<b><math>y = 3x + 1</math></b>	<b>y</b>	<b>( x , y )</b>
<b>-3</b>	<b><math>y = 3 (-3) + 1</math></b>	<b>-8</b>	<b>( -3 , -8 )</b>
<b>-2</b>	<b><math>y = 3 (-2) + 1</math></b>	<b>-5</b>	<b>( -2 , -5 )</b>
<b>-1</b>	<b><math>y = 3 (-1) + 1</math></b>	<b>-2</b>	<b>( -1 , -2 )</b>
<b>0</b>	<b><math>y = 3 (0) + 1</math></b>	<b>1</b>	<b>( 0 , 1 )</b>
<b>1</b>	<b><math>y = 3 (1) + 1</math></b>	<b>4</b>	<b>( 1 , 4 )</b>
<b>2</b>	<b><math>y = 3 (2) + 1</math></b>	<b>7</b>	<b>( 2 , 7 )</b>
<b>3</b>	<b><math>y = 3 (3) + 1</math></b>	<b>10</b>	<b>( 3 , 10 )</b>

**Thus the solution set is =**

$$\{(-3,-8), (-2,-5), (-1,-2), (0,1), (1,4), (2,7), (3,10)\}$$

$\{(-3,-8), (-2,-5), (-1,-2), (0,1), (1,4), (2,7), (3,10)\}$

