Review Exercise Set 1

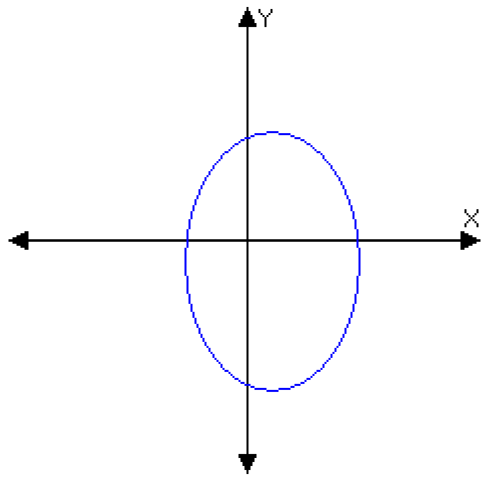
Exercise 1: Determine if the relationship is a function.

$$y + x^2 = 2y + 1$$

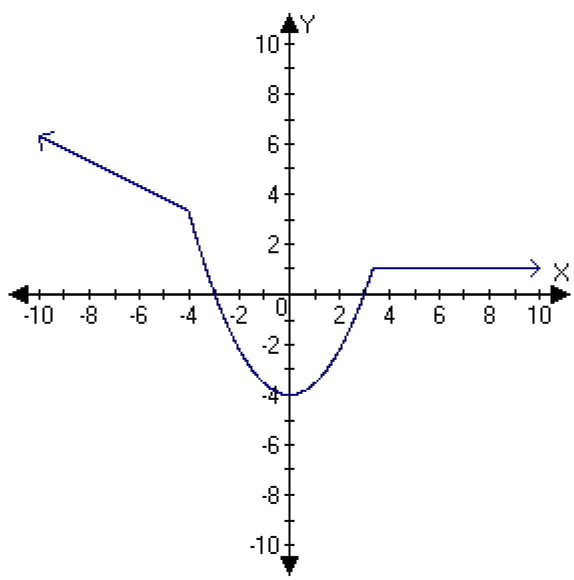
Exercise 2: Find 2h(-3a) given that $h(x) = x^3 - 4x + 5$.

Exercise 3: Find t(3x - 1) given that $t(a) = -2a^2 + a$.

Exercise 4: Use the vertical line test to determine if the given graph represents a function.



Exercise 5: Use the given graph to determine the functions (a) domain, (b) range, and (c) intercepts.



Review Exercise Set 1 Answer Key

Exercise 1: Determine if the relationship is a function.

$y + x^2 = 2y + 1$

Solve the equation for y

$y - 2y = 1 - x^2$
$-y = 1 - x^2$
$y = -1 + x^2$
$y = x^2 - 1$

This is a function because for every value we substitute into x there will be only one resulting answer for y.

Exercise 2: Find 2h(-3a) given that $h(x) = x^3 - 4x + 5$.

Find h(-3a)

$h(x) = x^3 - 4x + 5$
$h(-3a) = (-3a)^3 - 4(-3a) + 5$
$h(-3a) = -27a^3 + 12a + 5$

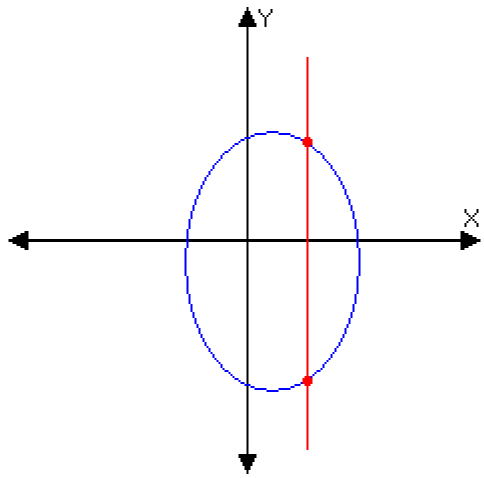
Find 2h(-3a)

$2h(-3a) = 2(-27a^3 + 12a + 5)$
$2h(-3a) = -54a^3 + 24a + 10$

Exercise 3: Find t(3x - 1) given that $t(a) = -2a^2 + a$.

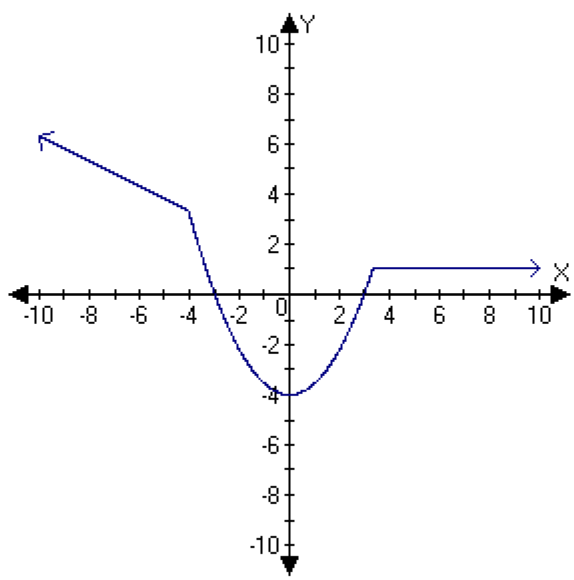
$t(a) = -2a^2 + a$
$t(3x - 1) = -2(3x - 1)^2 + (3x - 1)$
$t(3x - 1) = -2(9x^2 - 6x + 1) + 3x - 1$
$t(3x - 1) = -18x^2 + 12x - 2 + 3x - 1$
$t(3x - 1) = -18x^2 + 15x - 3$

Exercise 4: Use the vertical line test to determine if the given graph represents a function.



This is not a function because a vertical line can be drawn where it crosses the graph at more than one point.

Exercise 5: Use the given graph to determine the functions (a) domain, (b) range, and (c) intercepts.



a) Domain: All real numbers since the graph continues to the left and to the right without any breaks.

$$(-\infty, \infty) \quad or \quad -\infty < x < \infty \quad or \quad \{x \mid x \in \mathbb{R}\}$$

Exercise 5 (Continued):

b) Range: All numbers greater than or equal to -4 since -4 is the lowest point on the graph and it continues to rise without bound.

$$[-4, \infty) \quad or \quad -4 \le y < \infty \quad or \quad \{y \mid y \ge -4\}$$

c) Intercepts

x-intercepts: (-3, 0) and (3, 0)
y-intercept: (0, -4)