Review Exercise Set 1

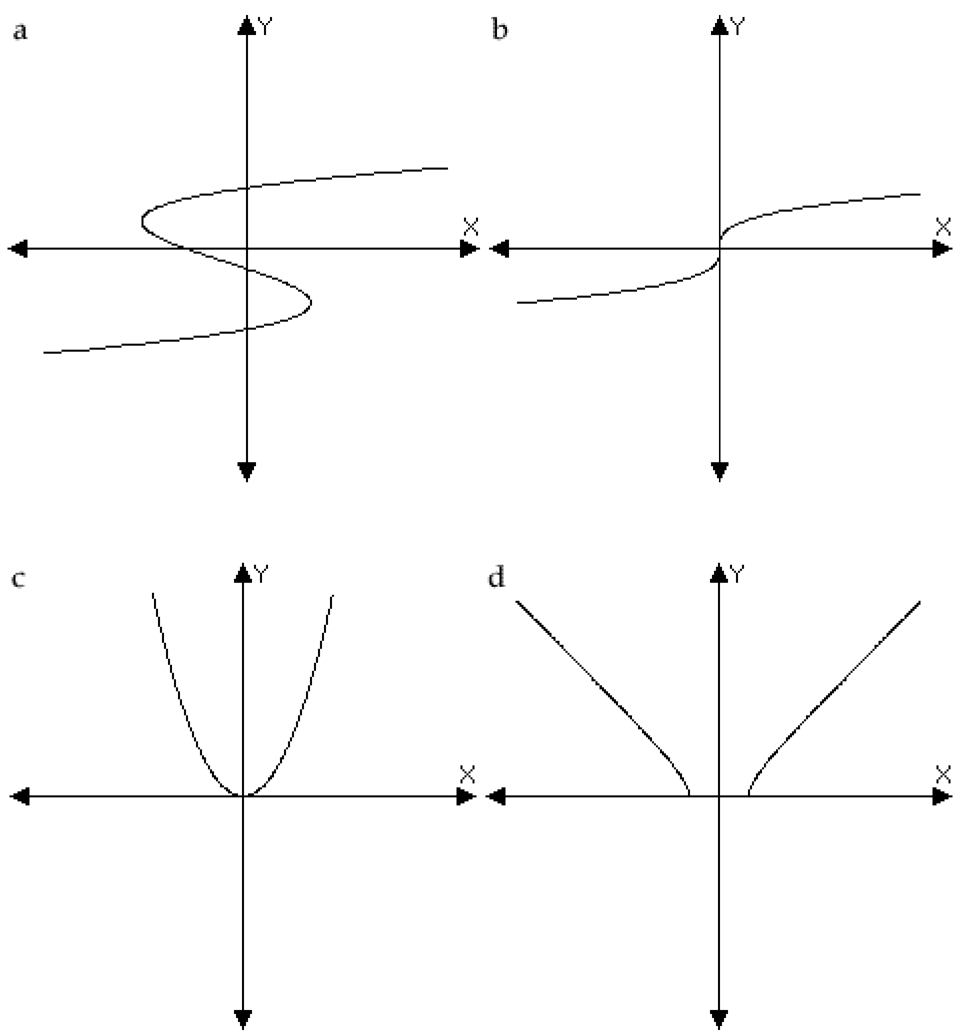
Exercise 1: Determine if the relationship is a function.

{(2,3), (-1,2), (0,4), (4,8), (8,3)}

Exercise 2: Determine if the relationship is a function.

$x + y^2 - 2 = 0$

Exercise 3: Use the vertical line test to determine which graph(s) represent functions.



Exercise 4: Evaluate 2h(3) given that $h(x) = x^2 + 2x + 4$.

Exercise 5: Evaluate t(x + 2) given that $t(a) = 5 - a^2$.

Exercise 6: Determine the domain restriction (if any) for the given function. State your answer in interval notation.

$$g(x) = x^3 + 4$$

Exercise 7: Determine the domain restriction (if any) for the given function. State your answer in interval notation.

$$f(x) = \frac{2x}{x+4}$$

Review Exercise Set 1 Answer Key

Exercise 1: Determine if the relationship is a function.

{(2,3), (-1,2), (0,4), (4,8), (8,3)}

This is a function since each x-coordinate has only one associated y-coordinate.

Exercise 2: Determine if the relationship is a function.

$x + y^2 - 2 = 0$

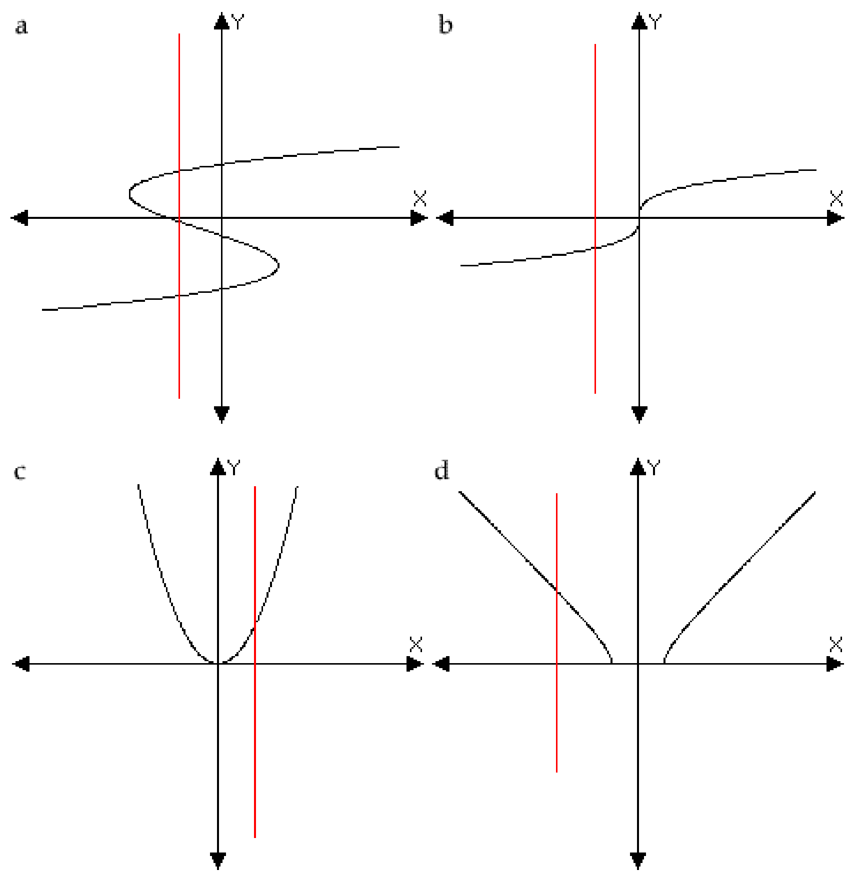
For this problem, we can first solve the equation for y

$y^2 = 2 - x$

$y = \pm\sqrt{2-x}$

Since there is a plus or minus sign in front of the radical, this is not a function because there would be two y-values for each x-value except for when x = 2.

Exercise 3: Use the vertical line test to determine which graph(s) represent functions.



The graph that is not a function is graph "a" since it would fail the vertical line test because the line intersects the graph at more than one point.

Exercise 4: Evaluate 2h(3) given that $h(x) = x^2 + 2x + 4$.

First, find h(3)

$h(x) = x^2 + 2x + 4$
$h(3) = (3)^2 + 2(3) + 4$
$h(3) = 9 + 6 + 4$
$h(3) = 19$

Now, find 2h(3)

$2h(3) = 2(19)$
$2h(3) = 38$

Exercise 5: Evaluate t(x + 2) given that $t(a) = 5 - a^2$.

$t(a) = 5 - a^2$
$t(x + 2) = 5 - (x + 2)^2$
$t(x + 2) = 5 - (x^2 + 4x + 4)$
$t(x + 2) = 5 - x^2 - 4x - 4$
$t(x + 2) = -x^2 - 4x + 1$

Exercise 6: Determine the domain restriction (if any) for the given function. State your answer in interval notation.

$g(x) = x^3 + 4$

There is no domain restriction for this function since the variable x is not in the denominator of a fraction or within a radical. So our domain would be all real numbers.

D = $(-\infty, \infty)$

Exercise 7: Determine the domain restriction (if any) for the given function. State your answer in interval notation.

$$f(x) = \frac{2x}{x+4}$$

Here we have the variable x in the denominator of a fraction so we must make sure that the denominator is not equal to zero.

$$x + 4 \neq 0$$
$$x \neq -4$$

Our domain restriction is that x cannot be equal to negative four, so our domain is all real numbers except for negative four. D = $(-\infty, -4) \cup (-4, \infty)$