# Functions Review (Day 1)

A function is something that must pass the **vertical line test (VLT).** The vertical line test simply means we pass a vertical line across our graph and then we have two possibilities:
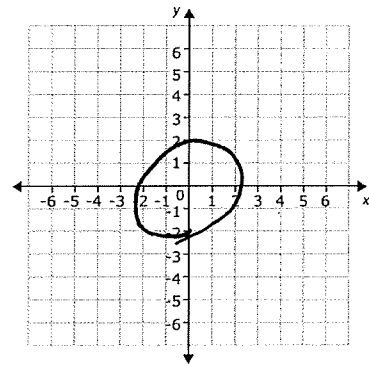
1) The vertical line touches the graph at only one spot at a time = It is a function!   OR
2) The vertical line touches the graph more than once at a certain time = It is not a function.

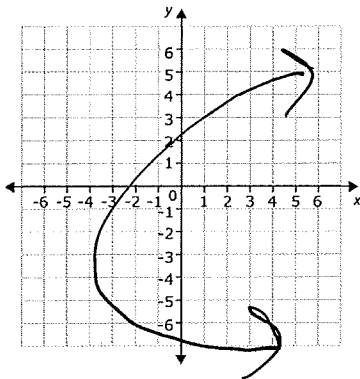1) Decide whether the following are functions or not by using the vertical line test.
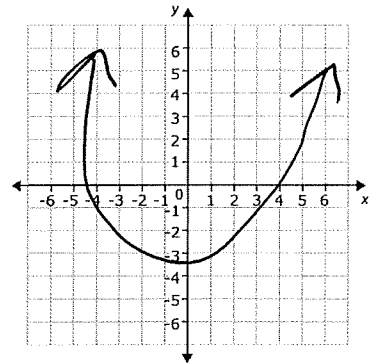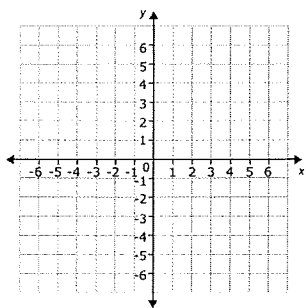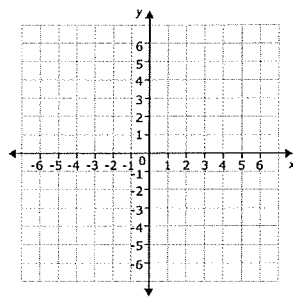
a)
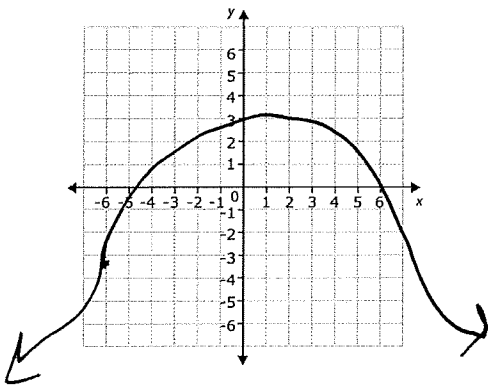
b)

c)

d)

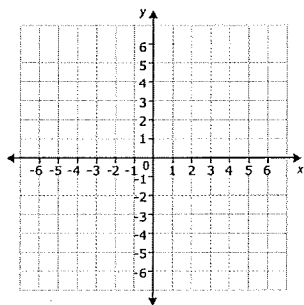2) Use a graphing calculator to graph the following functions.
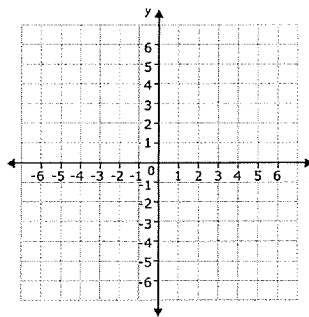
a) $y = 3x + 1$

b) $y = x^2 - 2$

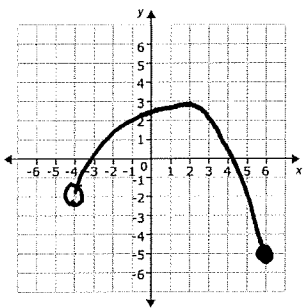b) $y = \sqrt{x - 1}$

d) $y = x^3 - 1$

3) Use a calculator to find the table of x- and y-values for these functions.
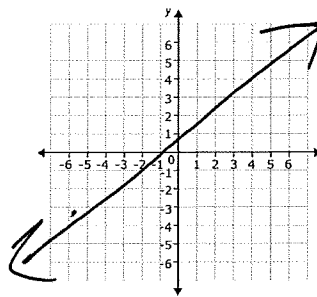
e) $y = x^4$

f) $y = 2 - x^2$

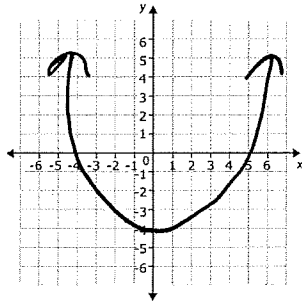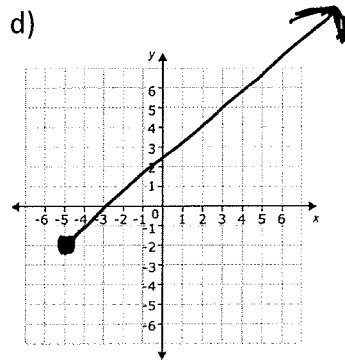4) Find the domain and the range for the following:

a)

b)

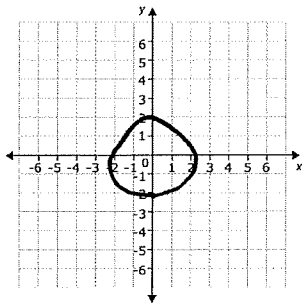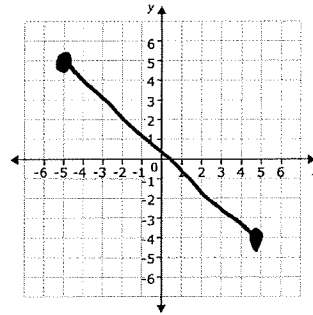4) (Continued): Find the domain and range of the following:

c)

d)

e)

f)

5) Add and subtract the following functions.

a) $(5x^2 + 2x - 4) + (3x - 4 + 11x^2)$

b) $(4x^2 - 3x - 7x^4) - (4x^3 + 3x - 5x^2)$

c) $(4x^2 - 5x) + (3x - 2x^2)$

d) $(5x^2 - 4) - (3x^2 + 2 - x)$

6) Multiply/dividing the following functions. Suppose that $f(x) = x^4 + 2$, $g(x) = x$, and $h(x) = 15 + x$.

a) Find $h(x) \cdot g(x)$

b) Find $\dfrac{f(x)}{h(x)}$.

c) Find $\dfrac{g(x)}{h(x)}$.