

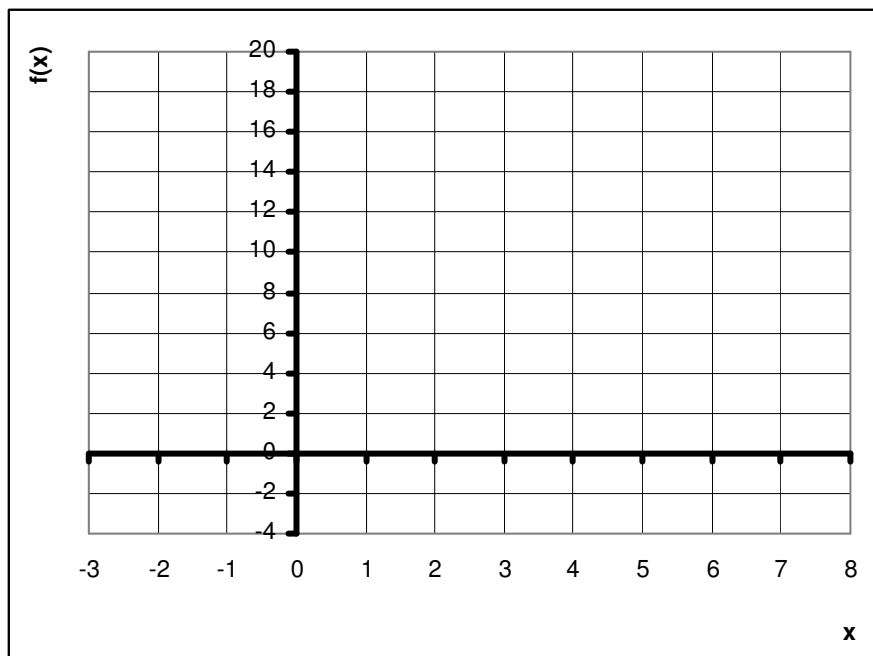
# MATH 100 Introduction to Quadratic Functions (12/01/2008)

## A Definition

A quadratic function is a function  $f$  defined by a rule of the form  $f(x) = ax^2 + bx + c$  where  $a$ ,  $b$ , and  $c$  are constants and  $a$  is not zero.

**Example:** Consider the quadratic function  $f(x) = x^2 - 5x + 4$ . Complete the table of values below and sketch a graph of the function.

$x$	$f(x)$
-2	
-1	
0	
1	
2	
3	
4	
5	
6	
7	



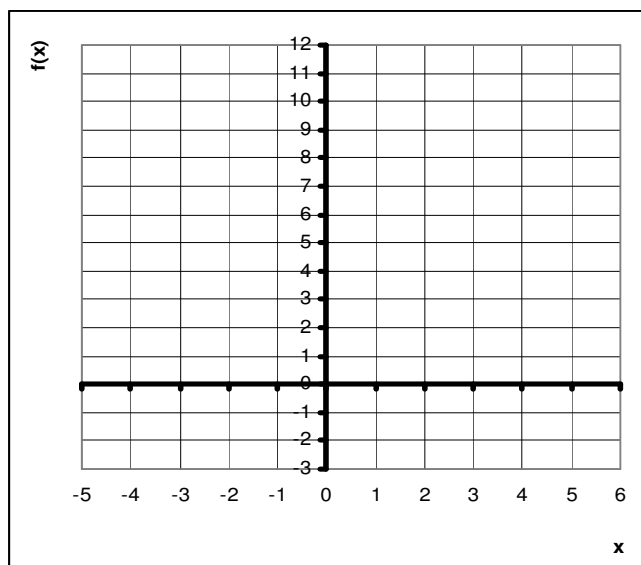
Sketch graphs of the following four functions on the same axes.

$$y = x^2$$

$$y = x^2 + 2$$

$$y = (x - 2)^2$$

$$y = -x^2$$

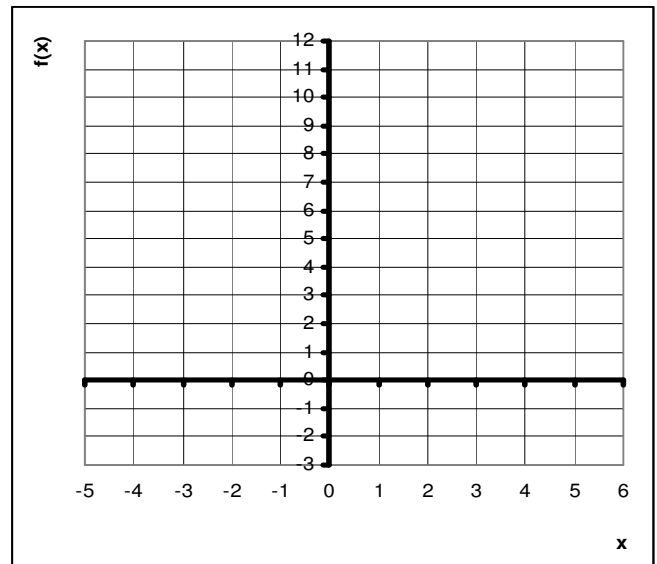


Sketch graphs of the following functions on the same axes.

$$y = x^2$$

$$y = 2x^2$$

$$y = 0.5x^2$$



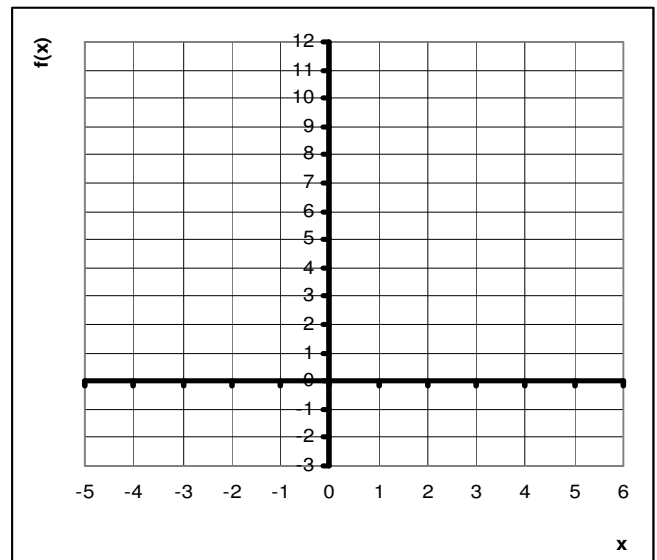
Sketch graphs of the following functions on the same axes.

$$y = (x - 2)^2 + 3$$

$$y = 2(x + 2)^2$$

$$y = -0.5(x - 2)^2$$

$$y = 3(x - 4)^2 + 1$$



Describe the graph of the function  $y = 2(x - 2)^2 - 18$ .

Describe the graph of  $y = a(x - h)^2 + k$ .