

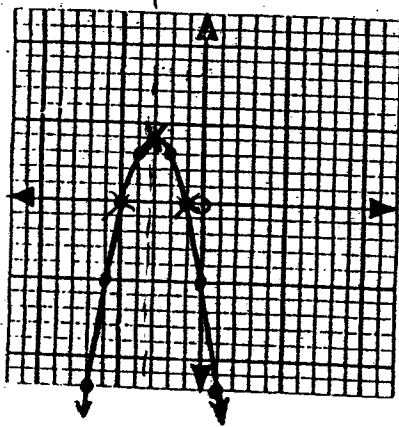
Notes: Graphs of Quadratic Functions (L4)

Given an equation, to recognize a quadratic function, its equation must be 2nd degree.

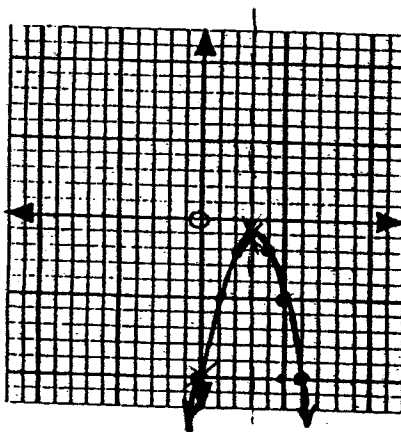
Equation	Quadratic?
$y = x^2 + 4$	<u>Yes</u>
$f(x) = -2x^3 + 4x$	<u>No</u>
$y = (x+8)(x+8)$	<u>Yes</u>
$y = \sqrt{x} - x$	<u>No</u>
$f(x) = 11x - 2x^2$	<u>Yes</u>
$y = \frac{1}{x^2 + 4} = (x^2 + 4)^{-1}$	<u>No</u>
$f(x) = 3x^3 + 2\sqrt{x} - x$	<u>No</u>

x^2
no \sqrt{x} or 3^x

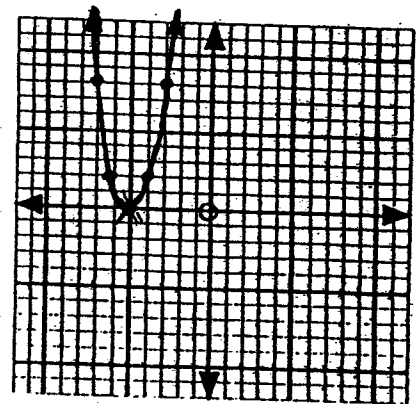
Given a graph of a quadratic function (the parabola), let's identify:



$y = -x^2 - 6x - 5$



$f(x) = -x^2 + 6x - 10$



$y = 2x^2 + 20x + 50$

	Graph A	Graph B	Graph C
a) Vertex:	<u>(-3, 4)</u>	<u>(3, -1)</u>	<u>(-5, 0)</u>
b) Axis of Symmetry	<u>$x = -3$</u>	<u>$x = 3$</u>	<u>$x = -5$</u>
c) x-intercept(s) where it crosses x-axis	<u>-1, -5</u>	<u>none</u>	<u>-5</u>
d) y-intercept where it crosses y-axis	<u>-5</u>	<u>-10</u>	<u>(none)</u>
e) domain	<u>$x \in \mathbb{R}$</u>	<u>$x \in \mathbb{R}$</u>	<u>$x \in \mathbb{R}$</u>
f) range	<u>$y \leq 4$</u>	<u>$y \leq -1$</u>	<u>$y \geq 0$</u>