

Warm-up....

Multiply:

a. $(3x^2 + 4x)(2x^2 - x)$

$$\begin{array}{r} 6x^4 - 3x^3 \\ + \quad 8x^3 - 4x^2 \\ \hline 6x^4 + 5x^3 - 4x^2 \end{array}$$

b. $(y - 3)(2y^2 - y + 6)$

$$\begin{array}{r} 2y^3 - y^2 + 6y \\ - 6y^2 + 3y - 18 \\ \hline 2y^3 - 7y^2 + 9y - 18 \end{array}$$

c. $(3a + 4)^2$

$$\begin{array}{r} (3a+4)(3a+4) \\ 9a^2 + 12a \\ + 12a + 16 \\ \hline 9a^2 + 24a + 16 \end{array}$$

Quadratic Function

▶ a nonlinear function that can be written in the form $f(x) = ax^2 + bx + c$, where $a \neq 0$

Exponent of 2

Standard Form

▶ the form of a quadratic function when it is written as $f(x) = ax^2 + bx + c$

y-intercept

$y = 2x + 3$

linear

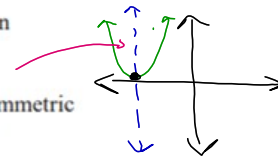
Parabola

▶ the shape of the graph of a quadratic function

Line of Symmetry

▶ the central line about which a parabola is symmetric

$\frac{-b}{2a}$



Axis

Vertex

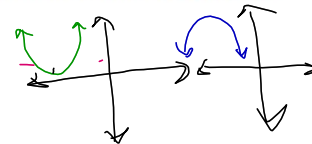
▶ the point of intersection between a parabola and its axis of symmetry

minimum

▶ the lowest point on a parabola

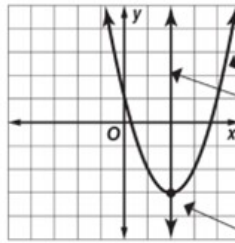
maximum

▶ the highest point on a parabola



Characteristics of Quadratic Functions

Fill in the boxes with the correct terms.



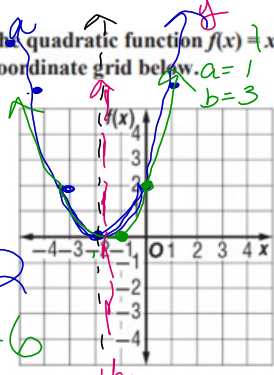
parabola

axis of symmetry

Vertex

Graph Quadratic Functions

Graph the quadratic function $f(x) = x^2 + 3x + 2$ on the coordinate grid below. $a=1$ $b=3$ $c=2$



$$\frac{-3}{2} = \frac{-b}{2a}$$

x	y
0	$(0)^2 + 3(0) + 2 = 2$
1	$(1)^2 + 3(1) + 2 = 6$
-4	$(-4)^2 + 3(-4) + 2 = 6$
-3	$(9) - 9 + 2$
-2	$4 - 6 + 2$

$$(-1) = 1 - 3 + 2 = 0$$

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