

Algebra 2 Review 4.1-4.4
Midchapter Test is tomorrow

1. Find the y-intercept, the equation of the axis of symmetry, and the x-coordinate of the vertex for $f(x) = 2x^2 + 8x - 3$. Then graph the function by making a table of values.

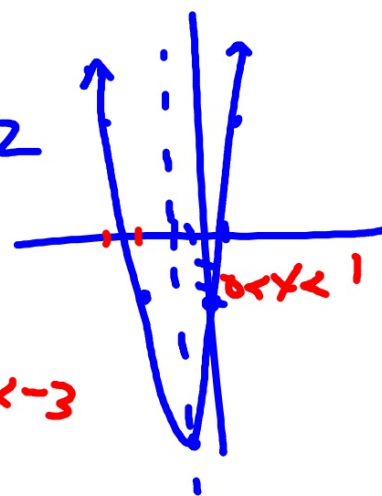
(Lesson 4-1)

y-int $(0, -3)$

$$\frac{-b}{2a} = \frac{-8}{4} = -2$$

x-vertex $(-2, -11)$

AOS $x = -2$



$$-4 < x < -3$$

-2	$2 \cdot (-2)^2 + 8 \cdot (-2) - 3$	-11
0	$0 + 0 - 3$	-3
1	$2 \cdot 1^2 + 8 \cdot 1 - 3$	7

2. **MULTIPLE CHOICE** For which equation is the axis of symmetry $x = 5$? (Lesson 4-1)

~~A $f(x) = x^2 - 5x + 3$~~

B $f(x) = x^2 - 10x + 7$

~~C $f(x) = x^2 + 10x - 3$~~

~~D $f(x) = x^2 + 5x + 2$~~

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

4. **PHYSICAL SCIENCE** From 4 feet above the ground, Maya throws a ball upward with a velocity of 18 feet per second. The height $h(t)$ of the ball t seconds after Maya throws the ball is given by $h(t) = -16t^2 + 18t + 4$. Find the maximum height reached by the ball and the time that this height is reached. (Lesson 4-1)

$$-\frac{b}{2a} = \frac{-18}{2 \cdot -16} = \frac{18}{32} = \frac{9}{16}$$

$$-16\left(\frac{9}{16}\right)^2 + 18\left(\frac{9}{16}\right) + 4$$

$$-5\frac{1}{16} + 10\frac{1}{8} + 4$$

$$= 9\frac{1}{16}$$

$$9\frac{1}{16} \text{ ft}$$
$$9\frac{1}{16} \text{ sec.}$$

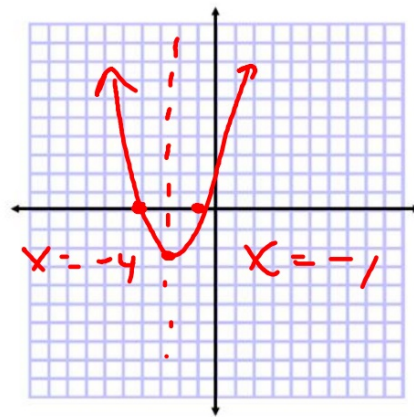
Solve by graphing

$$x^2 + 5x + 4 = 0$$

$$y = x^2 + 5x + 4$$

$$x = -\frac{5}{2}$$

-2.5	$(\quad)^2 + 5(\quad) + 4$	-2.25
	$6.25 + -12.5 + 4$	
-1	$-1 \cdot -1 + 5 \cdot -1 + 4$	0
	$1 + -5 + 4$	
-4	$16 + -20 + 4$	0



$$x = \frac{1}{3} \quad x = 6$$

$$3x^2 - 18x - x + 6 = 0$$

$$3 \cdot \overbrace{x^2}^2 \cdot \overbrace{-6x}^3 \cdot \overbrace{-\frac{1}{3}x}^3 + \overbrace{6}^3 = 0$$

$$(x - \frac{1}{3})(x - 6) = 0$$

$$x - \frac{1}{3} = 0 \quad x - 6 = 0$$

$$x = \frac{1}{3} \quad x = 6$$

$$3x^2 - 19x + 6 = 0$$

$$i^{19}$$

$$\cancel{i} \cdot i^3 = \underbrace{i \cdot i \cdot i}_{-1} = -1$$

$$(3+5i)(7-2i)$$

$$29i + 24$$

$$14 - 6i + 35i - 10i$$

$$24 + 29i$$

$$\frac{(2+3i)(4+7i)}{(4-7i)(4+7i)} = \frac{13+26i}{61}$$

$$\frac{13}{61} + \frac{26i}{61}$$

$$\begin{array}{r} 2+3i \\ 4+7i \\ \hline 8+12i \\ 14i+21i \\ \hline -13+26i \end{array} \quad \begin{array}{r} 4-7i \\ 4+7i \\ \hline 16-49i \\ \hline 61 \end{array}$$