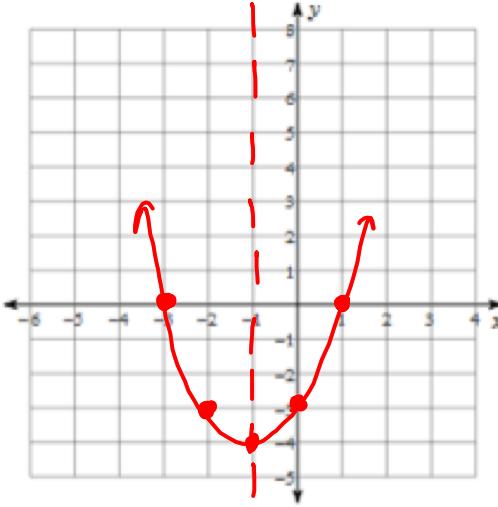
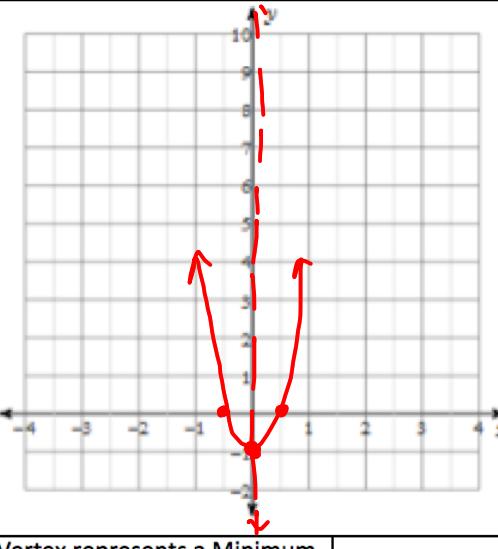


10.1 Intro to Quadratics

PRACTICE

Directions: Fill in the empty boxes. Place info on graph and sketch graph.

1) Equation in Standard Form:	$F(x) = x^2 + 2x - 3$		Vertex represents a Minimum or Maximum: MINIMUM Vertex: $(-1, -4)$ $(-1)^2 + 2(-1) - 3 = 1 - 2 - 3 = -4$
Equation in Factored Form:	$f(x) = (x+3)(x-1)$		
x-intercepts:	$(-3, 0), (1, 0)$		
y-intercept:	$(0, -3)$		
Point symmetric to y-intercept:	$(-2, -3)$		
Leading Coefficient:	1		
Axis of Symmetry:	$x = -1$		
Parabola opens which way:	UP		
2) Equation in Standard Form:	$f(x) = 2x^2 + 2x - 2x - 1$ $f(x) = 4x^2 - 1$		Vertex represents a Minimum or Maximum: MINIMUM Vertex: $(0, -1)$
Equation in Factored Form:	$F(x) = (2x - 1)(2x + 1)$		
x-intercepts:	$\left\{ \begin{array}{l} 2x-1=0 \\ 2x+1=0 \end{array} \right. \Rightarrow \left\{ \begin{array}{l} x=\frac{1}{2} \\ x=-\frac{1}{2} \end{array} \right.$ $(\frac{1}{2}, 0), (-\frac{1}{2}, 0)$		
y-intercept:	$(0, -1)$		
Point symmetric to y-intercept:	NONE		
Leading Coefficient:	4		
Axis of Symmetry:	$x=0$		
Parabola opens which way:	UP		

3) Equation in Standard Form:	$F(x) = -x^2 + 4x + 12$ $= -(x^2 - 4x - 12)$	
Equation in Factored Form:	$F(x) = -(x-6)(x+2)$	
x-intercepts:	(6, 0) (-2, 0)	
y-intercept:	(0, 12)	
Point symmetric to y-intercept:	(4, 12)	
Leading Coefficient:	-1	
Axis of Symmetry:	$x=2$	
Parabola opens which way:	Down	Vertex represents a Minimum or Maximum: MAXIMUM $-(x^2 + 4x + 12)$ $-x^2 - 4x - 12$

4) Equation in Standard Form:	$f(x) = x^2 + 5x + 3x + 15$ $f(x) = x^2 + 8x + 15$	
Equation in Factored Form:	$F(x) = (x+3)(x+5)$	
x-intercepts:	(-3, 0) (-5, 0)	
y-intercept:	(0, 15)	
Point symmetric to y-intercept:	(-8, 15)	
Leading Coefficient:	1	
Axis of Symmetry:	$x = -4$	
Parabola opens which way:	Up	Vertex represents a Minimum or Maximum: MINIMUM $(-4 + 3)(-4 + 5)$ $(-1)(1)$

Directions: For each equation, identify the initial value (I.V.) and the percent increase or decrease.

5) $f(x) = 100(1.75)^x$ I.V. <u>100</u> % Inc/Dec: <u>75%</u>	6) $f(x) = 0.7(3.106)^x$ I.V. <u>0.7</u> % Inc/Dec: <u>210.6%</u>	7) $f(x) = 8(0.75)^x$ I.V. <u>8</u> % Inc/Dec: <u>25%</u>
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8) Equation in Standard Form:	$-2(x^2 + 4x + 2x + 8)$ $-2(x^2 + 6x + 8)$ $f(x) = -2x^2 - 12x - 16$	
Equation in Factored Form:	$f(x) = -2(x+4)(x+2)$	
x-intercepts:	(-4, 0) (-2, 0)	
y-intercept:	(0, -16)	
Point symmetric to y-intercept:	(-6, -16)	
Leading Coefficient:	-2	
Axis of Symmetry:	$x = -3$	Vertex represents a Minimum or Maximum: MAXIMUM $-(-3+1)(-3-2)$ $-2(-1)(-5)$ $-2(-1) = 2$
Parabola opens which way:	DOWN	Vertex: (-3, 2)
9) Equation in Standard Form:	$f(x) = x^2 + 7x + 12$	
Equation in Factored Form:	$f(x) = (x+3)(x+4)$	
x-intercepts:	(-3, 0) (-4, 0)	
y-intercept:	(0, 12)	
Point symmetric to y-intercept:	(-7, 12)	
Leading Coefficient:	1	
Axis of Symmetry:	$\frac{-3+4}{2} = \frac{1}{2}$	Vertex represents a Minimum or Maximum: MINIMUM $(-3.5)^2 + 2(6.5) + 12$ $= -2.25$
Parabola opens which way:	UP	Vertex: (-3.5, -2.25)
Directions: Solve.	Directions: Solve the system.	Directions: Find x, when $f(x) = 5$.
10) $\frac{w-6}{4} + 2 = 10$ $w-6 = 32$ $w = 38$	11) $3x + y = -2$ $9x + 3y = -6$ $y = -2 - 3x$ $9x + 3(-2 - 3x) = -2$ $9x + -6 - 9x = -2$ $-6 = -2$ $NO SOL.$	12) $f(x) = 2x - 15$ $5 = 2x - 15$ $+15 \quad +15$ $\frac{20}{2} = \frac{2x}{2}$ $10 = x$ $f(10) = 5$