LESSON 4.1 Skills Practice (Day 2)

Name:
Date: Period:

Factor each expression.

1. $3x + 36$ $3(x+12)$

2. $42x - 35$ $7(6x-5)$

3. $-2x + 14$ $-2(x-7)$

4. $f(x) = 3x^2 - 6x$ $3x(x-2)$

Determine which form each quadratic is in (standard, vertex, or intercept form). Then, find the vertex for each using the methods discovered for each form.

5. $f(x) = 3x^2 - 6x + 4$

Standard

$\frac{6}{2(3)} = \frac{6}{6} = 1$ $3-6+4=1$ $(1,1)$

6. $G(x) = 2(x - 4)(x + 2)$

Intercept $2(-3)(3)$ -18

$\frac{4-2}{2} = \frac{2}{2} = 1$ $(1,18)$

7. $H(x) = 3(x - 2)^2 - 7$

Vertex $(2,-7)$

8. $f(x) = 3(x - 2)(x + 6)$

Intercept $3(-4)(4)$ -48

$\frac{2-6}{2}$ $\frac{-4}{2} = -2$ $(-2,-48)$

9. $G(x) = 2x^2 - 8x - 5$

Standard $8-16-5$ -13

$\frac{8}{2(4)} = \frac{8}{4} = 2$ $(2,13)$

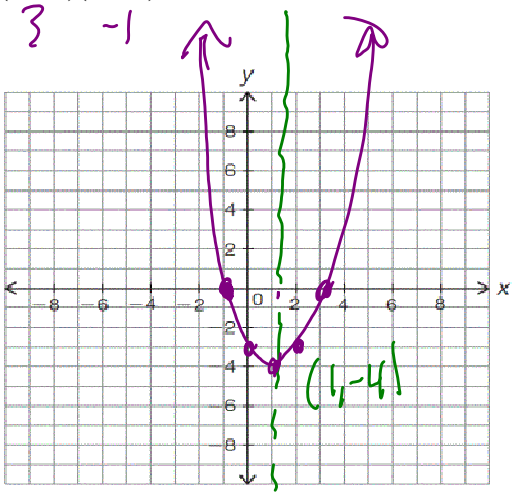
10. $H(x) = 4(x + 2)^2 + 1$

Vertex $(-2,1)$

11. Graph: $f(x) = (x - 3)(x + 1)$

3 -1

X	Y
-1	0
0	-3
1	-4
2	-3
3	0



$x = 1$

Domain: $(-\infty, \infty)$

Range: $[-4, \infty)$

y-intercept: $(0,-3)$

zeros: $(-1,0)$ $(3,0)$

Interval of increase: $(1, \infty)$

Interval of decrease: $(-\infty, 1)$

Equation of axis of symmetry: $x = 1$

Max or min? What is max/min? Where is max/min?

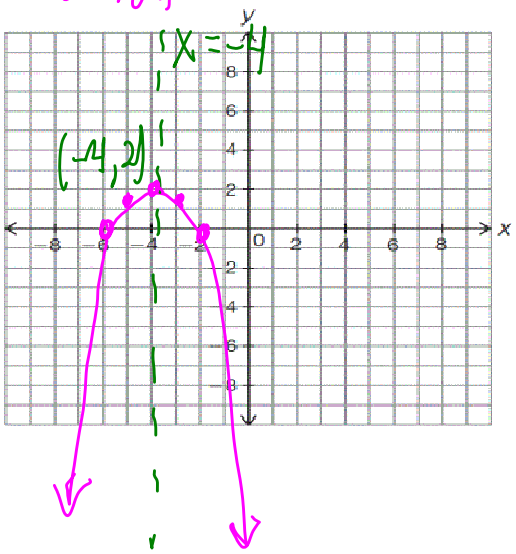
-4 $(1,-4)$

-2 -6

12. Graph: $f(x) = -\frac{1}{2}(x + 2)(x + 6)$

(-2)(-6)

X	Y
-6	0
-5	1.5
-4	2
-3	1.5
-2	0



Domain: $(-\infty, \infty)$

Range: $(-\infty, 2]$

y-intercept: $(0, -6)$

zeros: $(-2, 0)$ $(-6, 0)$

Interval of increase: $(-\infty, -4)$

Interval of decrease: $(-4, \infty)$

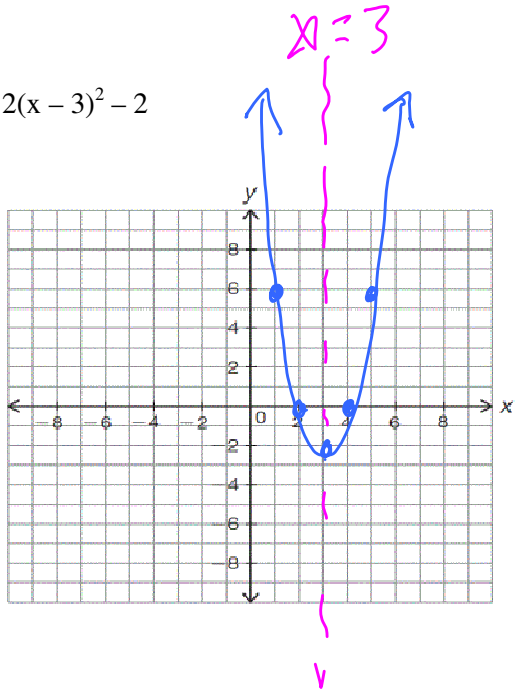
Equation of axis of symmetry: $x = -4$

Max or min? What is max/min? Where is max/min?

2 $(-4, 2)$

13. Graph: $f(x) = 2(x - 3)^2 - 2$

X	Y
1	6
2	0
3	-2
4	0
5	6



Domain: $(-\infty, \infty)$

Range: $[-2, \infty)$

y-intercept: $(0, 16)$

zeros: $(2, 0)$ $(4, 0)$

Interval of increase: $(3, \infty)$

Interval of decrease: $(-\infty, 3)$

Equation of axis of symmetry: $x = 3$

Max or min? What is max/min? Where is max/min?

-2 $(3, -2)$