Secondary Math 2 Honors

Name_____

Unit 3 Graphing Quadratics Review

Date_____ Period____

1) What is the growth rate of a parabola?

2) How do you graph a parabola (regardless of what form it's in)?

3) What do the x-intercepts of a graph represent?

4) Draw an example of a quadratic that has imaginary solutions.

5) Describe how to find the vertex from each form.

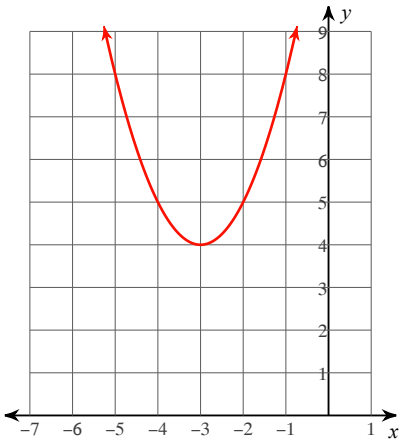
a. Vertex form

b. Intercept form

c. Standard form

Sketch the graph of each function. Identify the key features when asked.

6) $y = x^2 + 6x + 13$



7) a. x-intercept(s):

b. y-intercept:

c. axis of symmetry:

d. vertex:

e. Max/Min Value:

f. Domain:

g. Range:

h. Increasing:

i. Decreasing:

j. Direction of Opening:

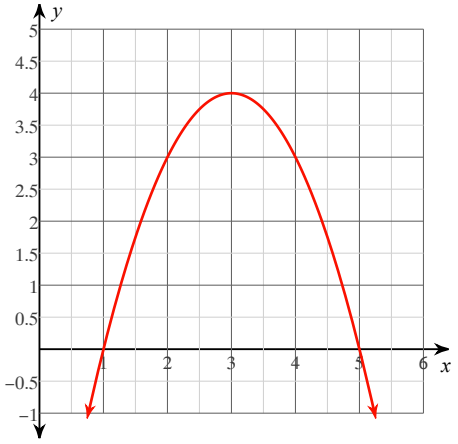
k. Positive:

l. Negative:

m. End behavior:

a. None
b. $(0, 13)$
c. $x = -3$
d. $(-3, 4)$
e. Min, 4
f. $(-\infty, \infty)$
g. $[4, \infty)$
h. $(-3, \infty)$
i. $(-\infty, 3)$
j. Up
k. $(-\infty, \infty)$
l. None
m. As $x \to -\infty$, $y \to \infty$
As $x \to \infty$, $y \to \infty$

8) $y = -x^2 + 6x - 5$



9) a. x-intercept(s):

b. y-intercept:

c. axis of symmetry:

d. vertex:

e. Max/Min Value:

f. Domain:

g. Range:

h. Increasing:

i. Decreasing:

j. Direction of Opening:

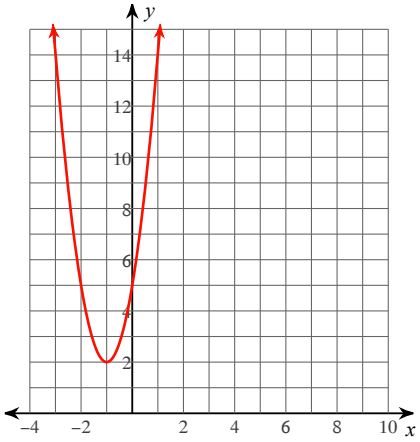
k. Positive:

l. Negative:

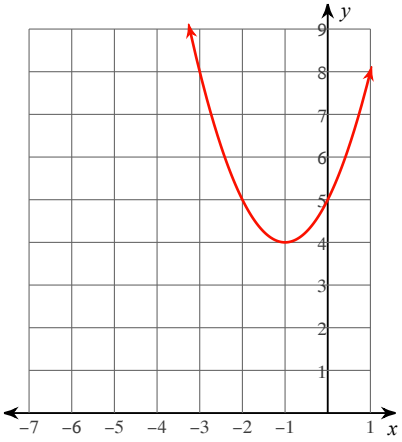
m. End behavior:

a. $(1, 0), (5, 0)$
b. $(0, -5)$
c. $x = 3$
d. $(3, 4)$
e. Max, 4
f. $(-\infty, \infty)$
g. $(-\infty, 4]$
h. $(-\infty, 3)$
i. $(3, \infty)$
j. Down
k. $(1, 5)$
l. $(-\infty, 1) \cup (5, \infty)$
m. As $x \to -\infty$, $y \to -\infty$
As $x \to \infty$, $y \to -\infty$

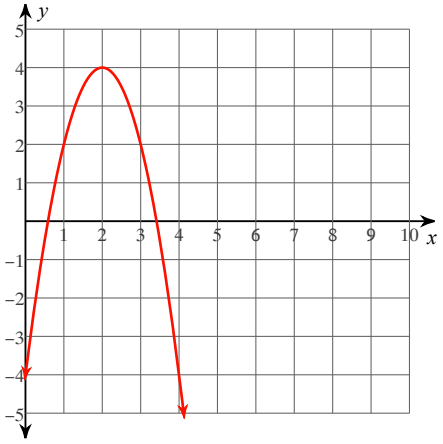
10) $y = 3x^2 + 6x + 5$



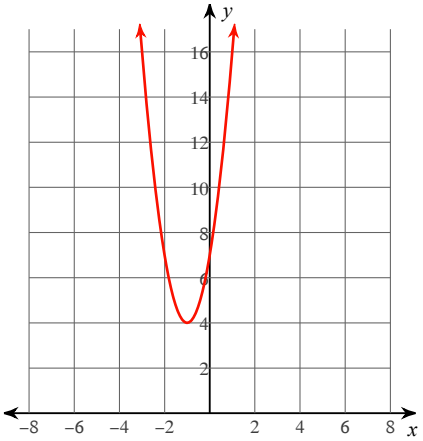
11) $y = x^2 + 2x + 5$



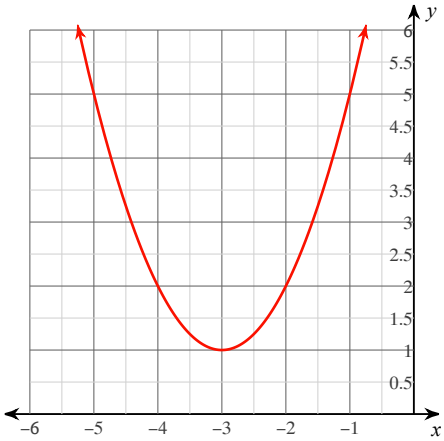
12) $y = -2x^2 + 8x - 4$



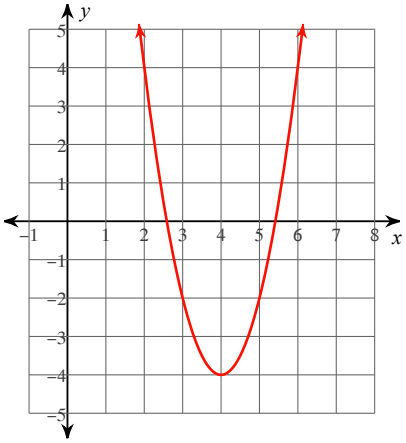
13) $y = 3x^2 + 6x + 7$



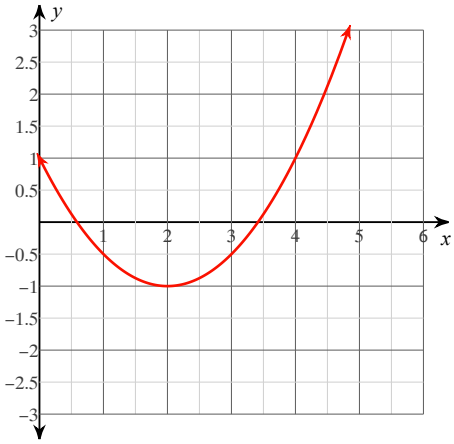
14) $y = (x + 3)^2 + 1$



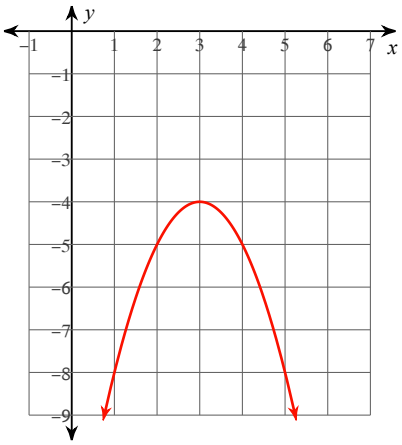
15) $y = 2(x - 4)^2 - 4$



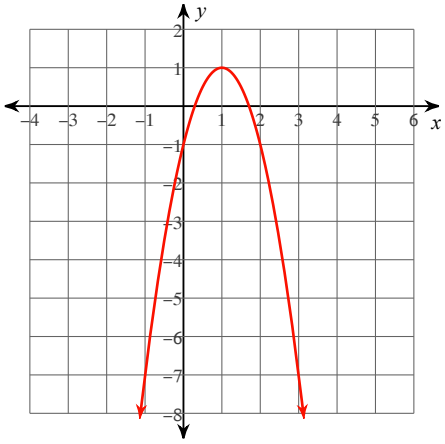
16) $y = \frac{1}{2}(x - 2)^2 - 1$



17) $y = -(x - 3)^2 - 4$



18) $f(x) = -2(x-1)^2 + 1$



19) a. x-intercept(s): a. Around $(0.5, 0)$, $(1.5, 0)$

b. y-intercept: b. $(0, -1)$

c. axis of symmetry: c. $x = 1$

d. vertex: d. $(1, 1)$

e. Max/Min Value: e. Max, 1

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

g. Range: g. $-\infty, 1]$

h. Increasing: h. $(-\infty, 1)$

i. Decreasing: i. $(1, \infty)$

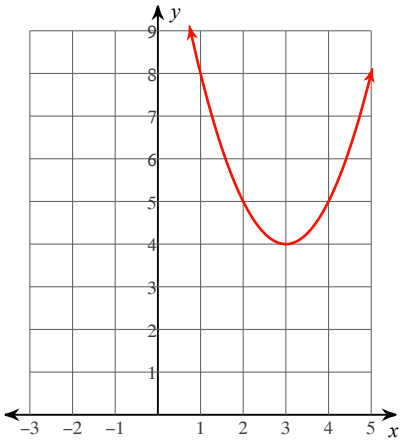
j. Direction of Opening: j. Down

k. Positive: k. $(0.5, 1.5)$

l. Negative: l. $(-\infty, 0.5) \cup (1.5, \infty)$

m. End behavior: m. As $x \to -\infty$, $y \to -\infty$
As $x \to \infty$, $y \to -\infty$

20) $f(x) = (x-3)^2 + 4$



21) a. x-intercept(s): a. None

b. y-intercept: b. $(0, 13)$

c. axis of symmetry: c. $x = 3$

d. vertex: d. $(3, 4)$

e. Max/Min Value: e. Min, 4

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

g. Range: g. $[3, \infty)$

h. Increasing: h. $(3, \infty)$

i. Decreasing: i. $(-\infty, 3)$

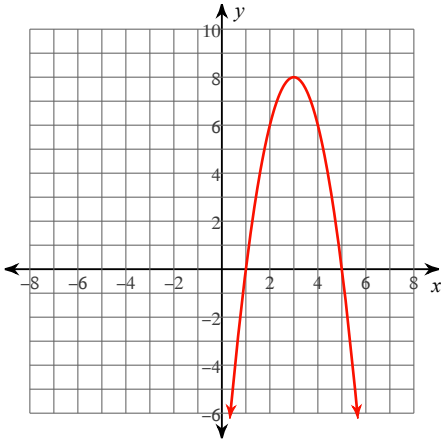
j. Direction of Opening: j. Up

k. Positive: k. $(-\infty, \infty)$

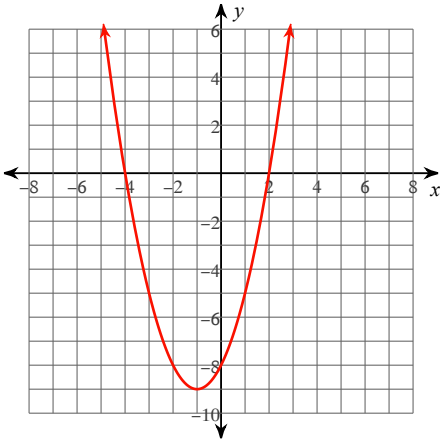
l. Negative: l. None

m. End behavior: m. As $x \to -\infty$, $y \to \infty$
As $x \to \infty$, $y \to \infty$

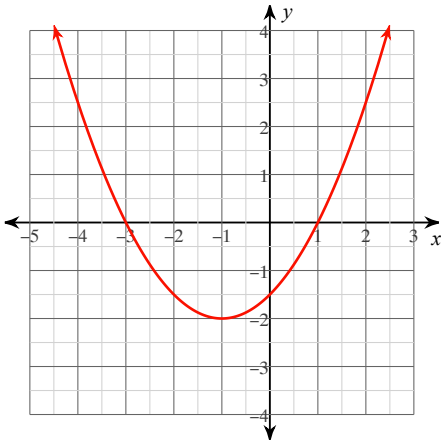
22) $y = -2(x - 5)(x - 1)$



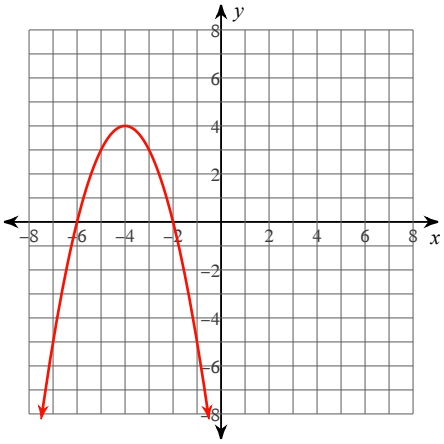
23) $y = (x + 4)(x - 2)$



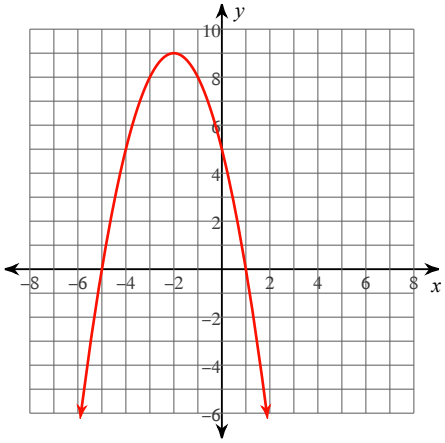
24) $y = \frac{1}{2}(x + 3)(x - 1)$



25) $f(x) = -(x + 6)(x + 2)$



26) $f(x) = -(x-1)(x+5)$



27) a. x-intercept(s):

b. y-intercept:

c. axis of symmetry:

d. vertex:

e. Max/Min Value:

f. Domain:

g. Range:

h. Increasing:

i. Decreasing:

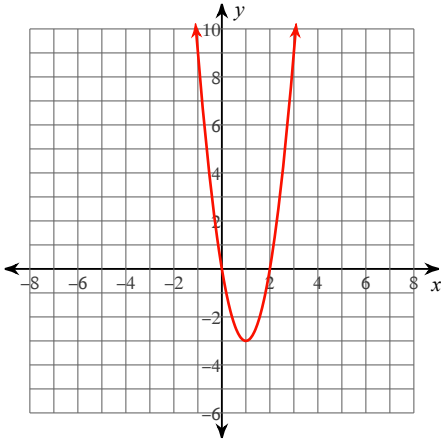
j. Direction of Opening:

k. Positive:

l. Negative:

m. End behavior:

28) $f(x) = 3x(x-2)$



29) a. x-intercept(s):

b. y-intercept:

c. axis of symmetry:

d. vertex:

e. Max/Min Value:

f. Domain:

g. Range:

h. Increasing:

i. Decreasing:

j. Direction of Opening:

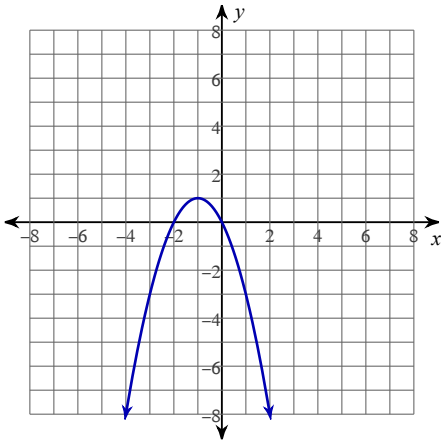
k. Positive:

l. Negative:

m. End behavior:

Write the equation of the graph in each form.

30)



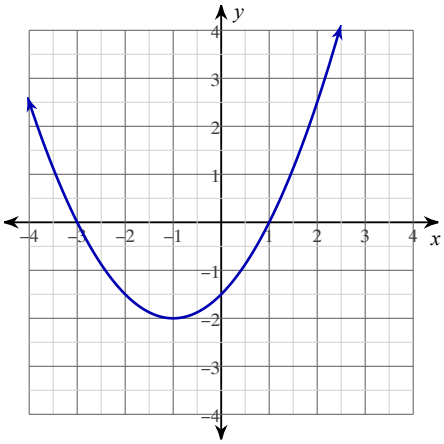
31) a. Vertex form

a. $y = -(x+1)^2 + 1$
b. $y = -x(x+2)$
c. $y = -x^2 - 2x$

b. Intercept form

c. Standard form.

32)



33) a. Vertex form

a. $y = \frac{1}{2}(x+1)^2 - 2$

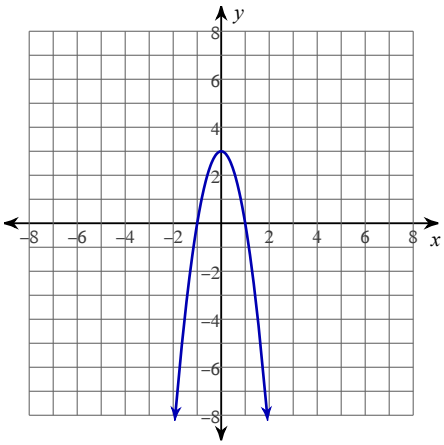
b. $y = \frac{1}{2}(x+3)(x-1)$

c. $y = \frac{1}{2}x^2 + x - \frac{3}{2}$

b. Intercept form

c. Standard form.

34)



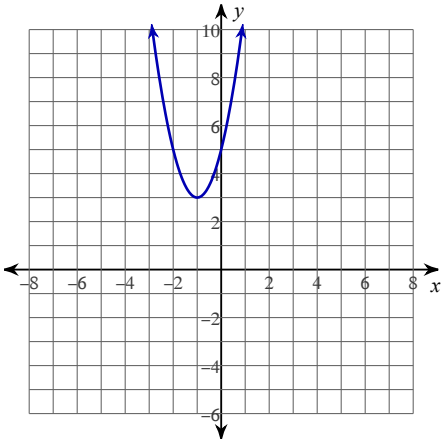
35) a. Vertex form

a. $y = x^2 + 3$
b. $y = (x+1)(x-1)$
c. $y = x^2 + 3$

b. Intercept form

c. Standard form.

36)



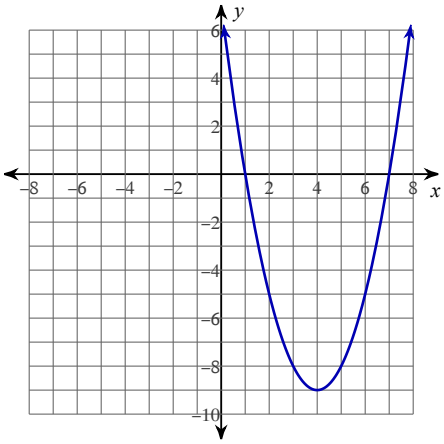
37) a. Vertex form

a. $y = 2(x + 1)^2 + 3$
b. N/A
c. $y = 2x^2 + 4x + 5$

b. Intercept form

c. Standard form.

38)



39) a. Vertex form

a. $y = (x - 4)^2 - 9$
b. $y = (x - 1)(x - 7)$
c. $y = x^2 - 8x + 7$

b. Intercept form

c. Standard form.