

Day 12 – Comparing Quadratic Functions
Practice Assignment

Name: _____

Date: _____ Block: _____

Directions: Answer the following questions to comparing quadratic functions.

1. Which quadratic function has the bigger y-intercept? Explain why.

a. $y = -x^2 + 3x + 8$

b.

x	-4	-3	-2	-1	0	1
y	9	13	19	13	9	7

2. Which quadratic function has the smallest y-intercept? Explain why.

a. $y = x^2 + 4x - 12$

b. $y = (x + 3)(x - 3)$

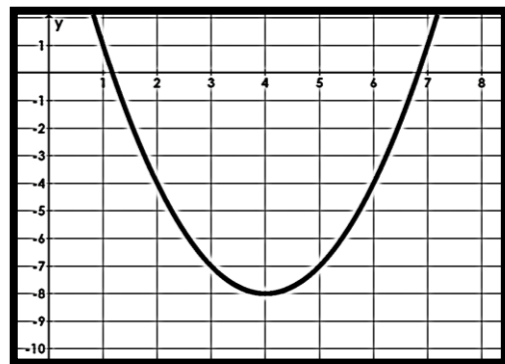
c. $y = (x + 2)^2 - 13$

3. Which quadratic function has the lower minimum value? Explain why.

a.

x	-4	-3	-2	-1	0	1
y	0	-5	-8	-9	-8	-5

b.



4. Which quadratic function has the bigger minimum value? Explain why.

a. $y = (x + 4)^2 + 2$

b. $y = -(x + 3)(x + 1)$

c.

x	2	3	4	5	6
y	0	-1	0	3	8

5. Two seagulls dive into the ocean. The given functions represent the height of each seagull above the surface of the ocean as a function of the seagull's horizontal distance from a center buoy. For each set of functions, **determine which bird descends deeper into the ocean**. Support your answer with facts (work).

a.

$$\begin{cases} \text{First Seagull: } f(x) = 3(x-2)^2 - 5 \\ \text{Second Seagull: } g(x) = \{(-8,0), (-6,-4), (-4,0)\} \end{cases}$$

b.

$$\begin{cases} \text{First Seagull: } f(x) = 3x^2 - 12x + 7 \\ \text{Second Seagull: } g(x) = \frac{1}{2}(x+2)^2 - 6 \end{cases}$$

c.

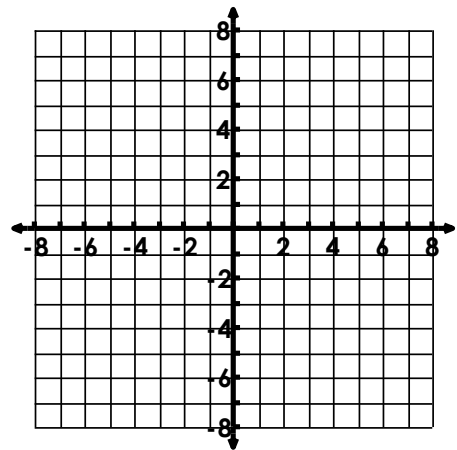
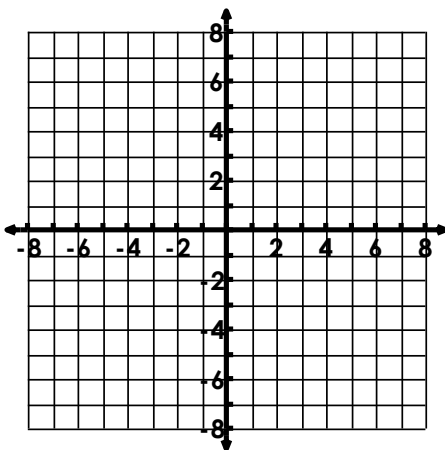
$$\begin{cases} \text{First Seagull: } f(x) = 2x^2 - 8x + 11 \\ \text{Second Seagull: } \end{cases}$$

x	-3	-1	1	3	5
g(x)	11	6	3	2	3

6. Which function has the lesser maximum value? Why?

A. Parabola with no x-intercepts and $a < 0$?

OR

B. Parabola with two x-intercepts and $a < 0$?

Use the graphs to help explain your answer.