

Name: _____ Date: _____

Find the point of intersection Algebraically:

- 1.
- 2.
- 3.
- 4.

Find the point of intersection algebraically. Your answer should be an ordered pair (x, y).

1. $f(x) = 2x + 5$
 $g(x) = 3x - 2$

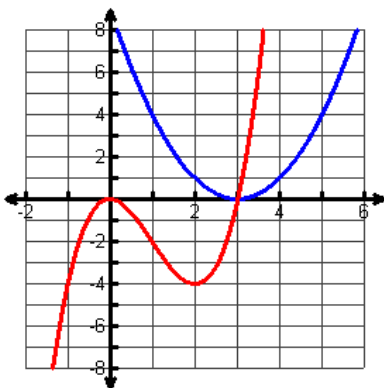
2. $f(x) = x^2 - 6$
 $g(x) = x^2 - 2x$

3. $f(x) = x^2 + 2x - 3$
 $g(x) = x - 1$

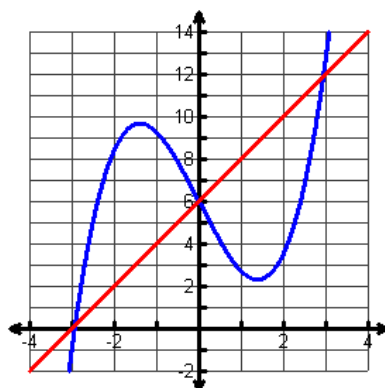
4. $f(x) = -x^2 + 2x + 2$
 $g(x) = 2x + 1$

Find the point of intersection graphically. Your answer(s) should be an ordered pair (x, y).

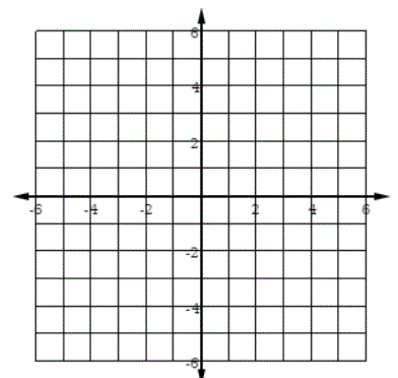
5. _____



6. _____



7. $f(x) = \frac{1}{3}x + 2$
 $g(x) = -\frac{4}{3}x - 3$



Comparing Properties of Quadratics Given in Different Forms

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).

1. $\left\{ \begin{array}{l} \text{First Seagull: } f(x) = 3(x - 2)^2 - 5 \\ \text{Second Seagull: } g(x) = \{(-8, 0), (-6, -4), (-4, 0)\} \end{array} \right.$

2. Which of the following functions has a vertex with a larger y-value?

$$f(x) = 2x^2 - 12x + 25 \quad \text{or} \quad \begin{array}{c|ccccc} x & -4 & -3 & -2 & 0 & 2 \\ \hline g(x) & 7 & 8 & 7 & -1 & -17 \end{array}$$

Comparing Quadratic Functions to Other Functions

Let's fill out the table to compare linear, quadratic and exponential functions over time.

3. Calculate and compare the slopes for each function from $x_1 = 0$ to $x_2 = 1$. Do the same for $x_1 = 5$ to $x_2 = 8$.

x	Linear $y = 2x + 2$	Quadratic $y = x^2 + 2$
0		
1		
2		
3		
4		
5		

Linear's R.O.C	Quadratic's R.O.C.
Whose R.O.C. is the steepest?	