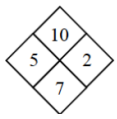
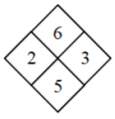
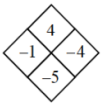
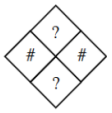
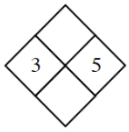
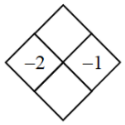
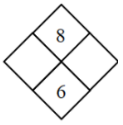
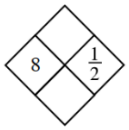
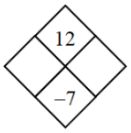
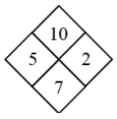
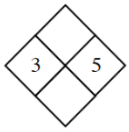
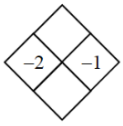
Name:	Date:

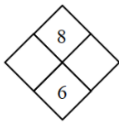
Topic:	Class:

Main Ideas / Questions	Notes/ Examples
Seeing Patterns	**Identify the pattern in the first three diamonds below. For the fourth diamond, explain how to find the missing numbers (?) if you know the 2 numbers (#). Then, use the pattern to complete the remaining diamonds.**
	    a.  b.  c.  d.  e. 
Factored Form	**Factored Form of a Quadratic Equation:** • **_____ and _____ are the x-intercepts (factors, roots, solutions)**
Making Connections	**The quadratic represented by the standard form equation $y = x^2 + 7x + 10$ and the factored form equation $y = (x + 5)(x + 2)$ can be modeled by the diamond below. What connections can you make between the 2 equations and the diamond?** 
	Given the diamonds you completed above, what are the standard and factored form quadratic equations?
	a.  **Standard Form: _____** **Factored Form: _____**

b. 

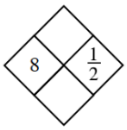
Standard Form: _____

Factored Form: _____

c. 

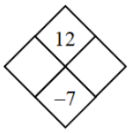
Standard Form: _____

Factored Form: _____

d. 

Standard Form: _____

Factored Form: _____

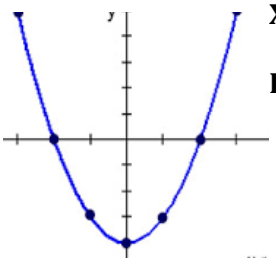
e. 

Standard Form: _____

Factored Form: _____

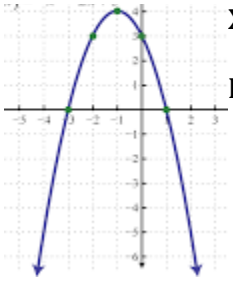
Examples

Find the x-intercepts (factors, roots, solutions) of the following quadratics. Then, write the factored form of the equation.

1. 

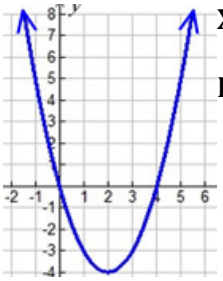
X-intercepts:

Factored Form:

2. 

X-intercepts:

Factored Form:

3. 

X-intercepts:

Factored Form:

4. $y = x^2 + 4x - 5$

X-intercepts:

Factored Form:

5. $y = x^2 - 2x + 1$

X-intercepts:

Factored Form:

6. $y = -x^2 + 2x - 3$

X-intercepts:

Factored Form:

7. $y = x^2 - 10x + 16$

X-intercepts:

Factored Form:

8. $y = -x^2 + 9$

X-intercepts:

Factored Form:

9. $y = -3x^2 + 6x$

X-intercepts:

Factored Form:

Identify key features from factored form	**10.** $y = (x - 2)(x - 5)$ **Axis of symmetry** **Vertex** **Domain** **Range** **11.** $y = (x + 8)(x + 2)$ **Axis of symmetry** **Vertex** **Domain** **Range** **12.** $y = (x - 4)(x + 1)$ **Axis of symmetry** **Vertex** **Domain** **Range**