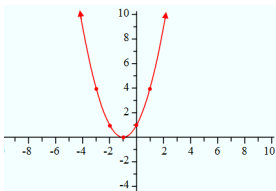
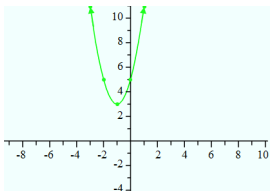
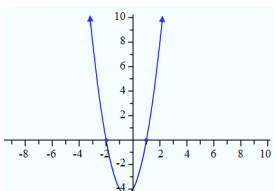


Graphing

Writing Equations

Form	Example
	$y = x^2 + 2x + 1$ 
	$y = 2(x + 1)^2 + 3$ 
	$y = -2(x - 1)(x + 2)$ 

Form	How To
	<p>Simplify from another form.</p> <p>Example: $y = 3(x + 1)^2 + 2$</p> $= 3(x + 1)(x + 1) + 2$ $= 3(x^2 + 2x + 1) + 2$ $= 3x^2 + 6x + 3 + 2$ $= 3x^2 + 6x + 5$
	<ol style="list-style-type: none"> 1. Use vertex and a point to solve for a. 2. Then put vertex and a into equation $y = a(x - h)^2 + k$
	<ol style="list-style-type: none"> 1. Use intercepts and point to solve for a. 2. Then put intercepts and a into equation $y = a(x - p)(x - q)$

Quadratics

- Factor out a monomial GCF first, if possible
- Reverse FOIL –OR– Factor by Grouping
- Remember! These problems do NOT have an equals sign, and the answer should include parentheses OR be “Prime” (cannot be factored)

Method	How To
	<ol style="list-style-type: none"> 1. Arrange so one side = 0 2. Factor other side. 3. Set each factor = 0 and solve.
	<ol style="list-style-type: none"> 1. Arrange into form $x^2 = q$ or $(x - p)^2 = q$ 2. Take the square root of both sides. 3. Simplify the radicals.
	<ol style="list-style-type: none"> 1. Use the formula $c = \left(\frac{b}{2}\right)^2$ to get into form $\left(x - \frac{b}{2}\right)^2 = k + c$ 2. Use Square Roots Method from here.
	<ol style="list-style-type: none"> 1. Use the formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ 2. Simplify the radical and then any fractions.

Graph the Equations—Use Graph Paper—Show Your Work Here

1. $y = 2x^2 - 4x + 3$

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

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

4. $y = 3(x - 1)^2$

5. $y = -(x + 4)(x - 2)$

6. $y = (x - 1)(x - 5)$

Write the Quadratic Equation in Standard Form

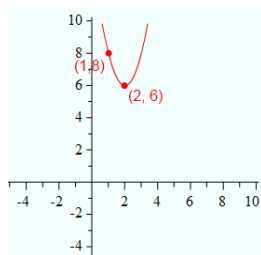
7. $y = (x - 1)^2 + 2$

8. $y = 3(x - 1)^2$

9. $y = (x - 1)(x - 5)$

Write the Quadratic Equation in Vertex Form

10.



11.

Vertex: (4, 1)

Point: (1, -2)

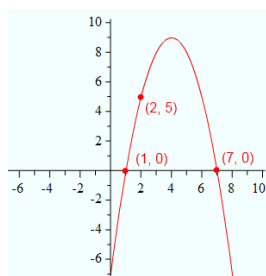
12.

Vertex: (-3, -8)

Point: (2, 2)

Write the Quadratic Equation in Intercept/Factored Form

13.



14.

Intercept: $(-6, 0)$
Intercept: $(-2, 0)$
Point: $(0, 8)$

15.

Intercept: $(-2, 0)$
Intercept: $(4, 0)$
Point: $(1, -9)$

Factor Completely

16. $x^2 + x - 6$

17. $x^2 - 10x + 24$

18. $3x^2 - 6x - 72$

19. $3x^2 + 17x + 10$

20. $6x^2 + 17x + 5$

21. $40x^2 + 36x + 8$

Solve By Factoring

22. $x^2 + 10x + 24 = 0$

23. $3x^2 + 6x - 24 = 0$

24. $x^2 + 3x = 10$

25. $x^2 + 9x + 3 = -3x^2 + x$

Solve with Square Roots

26. $x^2 = 50$

27. $x^2 + 49 = 0$

28. $3(x + 1)^2 = 27$

29. $-\frac{2}{3}(x - 2)^2 = 10$

Solve by Completing the Square

30. $x^2 + 6x = 40$

31. $x^2 + 1.4x = .32$

32. $x^2 + 3x = \frac{7}{4}$

33. $x^2 + 10x = 25$

Solve with Quadratic Formula

34. $x^2 + 4x + 13 = 0$

35. $x^2 + 4 = 5x$

36. $2x^2 + 9x - 5 = 0$

37. $x^2 + 4x = -7$

Answer the Question

38. The Smiths just got a dog and need to fence in a kennel area in their big yard. The length of the kennel will be triple its width, and the total area is 432 square feet. What are the dimensions of the kennel area?

39. The roof of the Empire State Building is 1250 feet above the ground. During a field trip, if you dump a truckload of water balloons from the roof, how long until they drench your classmates on the ground? Assume you miss but the splash from hitting the ground is spectacular, and round to the nearest hundredth of a second.

40. Literal Equations Challenge:

Convert both $y = a(x - h)^2 + k$ and $y = a(x - p)(x - q)$ into standard form.

