Review Guidelines for Chapter 5 Quadratic Functions

- Answer the questions in complete sentences and solve each problem.
- Neatly and clearly show all the major steps in leading to the solution.
- Draw graphs with plotted points clearly labeled either on the graph or in an x/y chart
- Be prepared to present any of these problems to the class if called on to do so.
- Do all work and writing on a separate sheet of graph paper.

5.1 Graphing Quadratic Functions

Graph:

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

form: _____

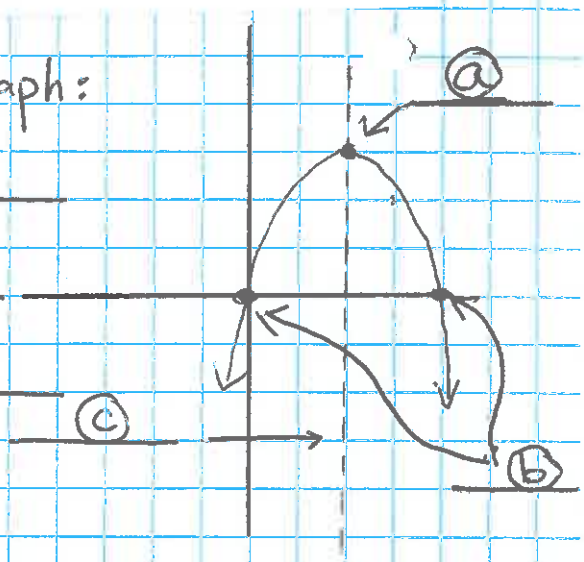
(3) $y = -\frac{1}{2}(x-3)^2 + 5$

form: _____

(4) $y = -(x-3)(x+1)$

form: _____

(1) label the graph:



(a) _____

(b) _____

(c) _____

(5) Write the quadratic function in standard form:

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

5.2 Solving Quadratic Functions by Factoring

Factor the expression:

(6) $x^2 - 14x - 15$ (7) $5x^2 + 4x - 12$ (8) $36x^2 - 49$ (9) $25x^2 - 10x + 1$

Solve:

(10) $14x^2 + 11x + 3 = 2x^2 - 3x + 3$ (11) $16x^2 + 24x + 9 = 0$

5.3 Solving Quadratic Functions by Finding Square Roots

Simplify the expression:

(12) $\sqrt{63}$ (13) $\sqrt{\frac{3}{25}}$ (14) $\sqrt{8} \cdot \sqrt{10}$ (15) $\sqrt{\frac{5}{3}}$ (16) Solve: $3x^2 + 2 = 62$

5.4 Complex Numbers

Write in standard form:

(17) $(8-i) - (3+2i) + (-4+6i)$ (18) $\frac{3+2i}{2+i}$ (19) Find the absolute value: $4+2i$

(20) Solve: $4x^2 + 9 = -17$

5.5 Completing the Square

Solve by completing the square:

(21) $x^2 - 12x + 4 = 0$

(22) $2x^2 + 8x - 1 = 0$

5.6 The Quadratic Formula and the Discriminant

Solve:

(23) $3x^2 + x - 8 = 0$

(24) Find the discriminant of $x^2 - 4x + 7 = 0$ and give the number and type of solutions of the equations.

5.7 Graphing and Solving Quadratic Inequalities

(25) Graph the system of inequalities

$y \geq x^2 - 9$

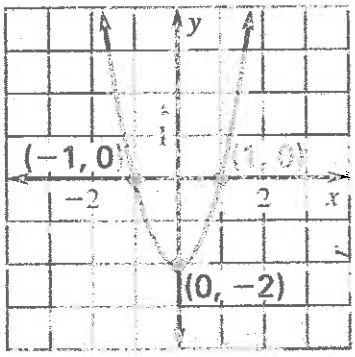
$y < -x^2 - x + 3$

(26) Solve:

$x^2 - 10x + 24 > 0$

5.8 Modeling with Quadratic Functions

(27) Write a quadratic function in intercept form for the parabola shown.



(28) Write a quadratic function in standard form for the parabola whose graph passes through (2, −2), (3, 4), and (0, −2).

(29) ***Throwing an Object on the Moon*** An astronaut standing on the surface of the moon throws a rock into the air with an initial velocity of 27 feet per second. The astronaut's hand is 6 feet above the surface of the moon. The height of the rock is given by $h = -2.7t^2 + 27t + 6$.

How many seconds is the rock in the air?