

Common Core Math II
Unit 2 Quadratic Functions Review

Name _____
 Date _____

_____ 1. Identify the vertex, x-intercepts, and y-intercepts of $f(x) = x^2 + 6x + 8$

_____ 2. A model rocket is fired upward at an initial velocity of 340 ft/s. The height $h(t)$ of the rocket is determined by the function $h(t) = v_0t - 16t^2$, where t is the time in seconds and v_0 is the initial velocity. How long will it take the rocket to hit the ground after takeoff?

_____ 3. Which answer shows how to solve $2x^2 - 3x - 4 = 0$ using the quadratic formula?

A. $\frac{3 \pm \sqrt{3^2 - 4(-3)(-4)}}{2(2)}$

B. $\frac{-(-3) \pm \sqrt{(-3)^2 - 4(2)(-4)}}{2(2)}$

C. $\frac{3 \pm \sqrt{2^2 - 4(2)(-4)}}{2(2)}$

_____ 4. Given $f(x) = -2(x + 3)^2 + 1$ describe the transformations if the parent function is $f(x) = x^2$.

Use the following situation for questions (5 – 8)

At a festival, apples are launched with large catapults and air cannons. On one launch, the height of an apple in feet above the ground after t seconds is modeled by $f(t) = -16t^2 + 150t + 30$.

5. Sketch the path of the apple on the graph.

_____ 6. When did the apple reach its maximum height?

_____ 7. What was the maximum height that the apple reached?

_____ 8. How long was the apple in the air?

9. Graph $f(x) \geq x^2 + 3x - 4$

_____ 10. Solve $4w^2 = 11w - 6$

_____ 11. Solve $x^2 - 13x - 2 = 0$

_____ 12. Find the discriminant of the quadratic equation. Find the number of roots. Describe the nature of the roots: rational, irrational, real, non-real for $x^2 - x - 28 = 0$.

_____ 13. Solve the system of equations by finding the points of intersection

$$y = 2x^2 - 6x - 16$$

$$y = 3x + 1$$

_____ 14. Find the quadratic function whose graph has x-intercepts at (2, 0) and (-4, 0) and minimum point (-1, -9). Write in standard form.

