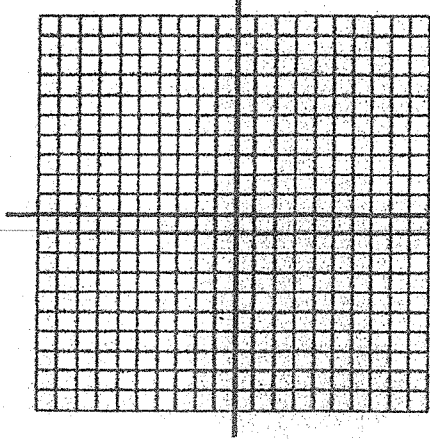Graphing Quadratics using x-intercepts
Worksheet #2

Name _____

1. $y = (x - 2)(x - 6)$
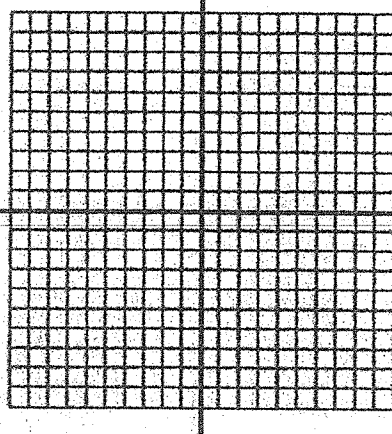   Vertex: (   )
   X = _____ _____

2. $f(x) = 4(x + 1)(x + 3)$
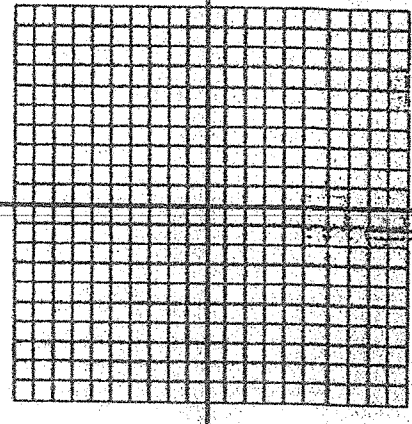   Vertex: (   )
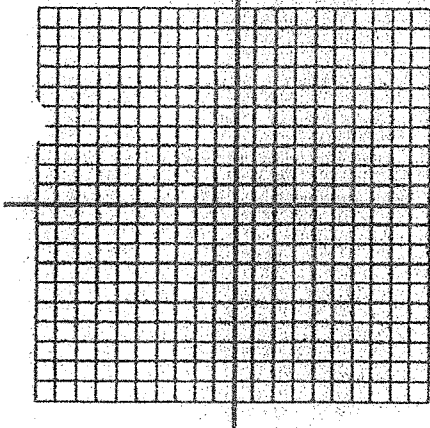   X = _____ _____

3. $y = -2(x + 3)(x - 1)$
   Vertex: (   )
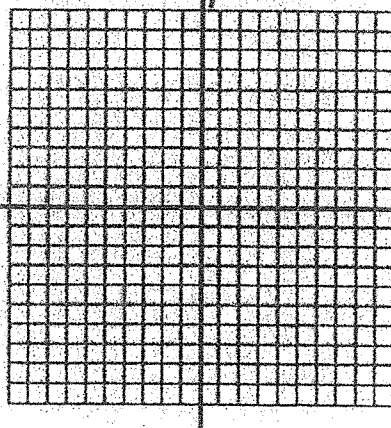   X = _____ _____

4. $f(x) = x^2 - 2x - 15$
   Vertex: (   )
   X = _____ _____

5. $y = -\frac{1}{2}(x - 2)(x + 6)$
   Vertex: (   )
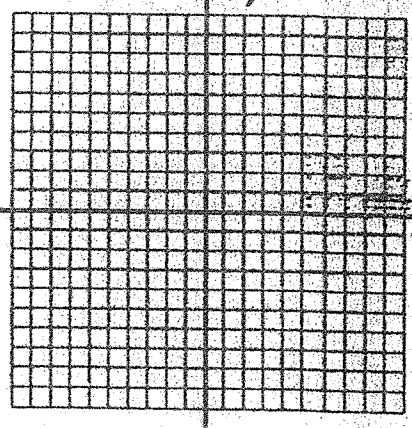   X = _____ , _____

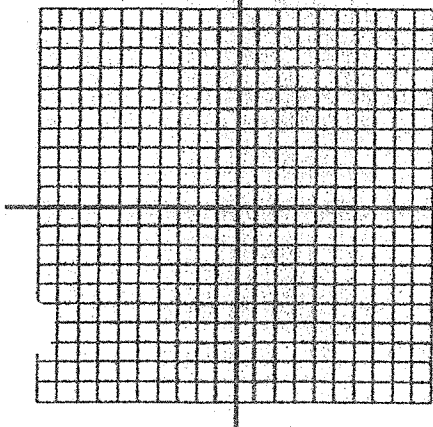6. $f(x) = x^2 - 6x + 8$
   Vertex: (   )
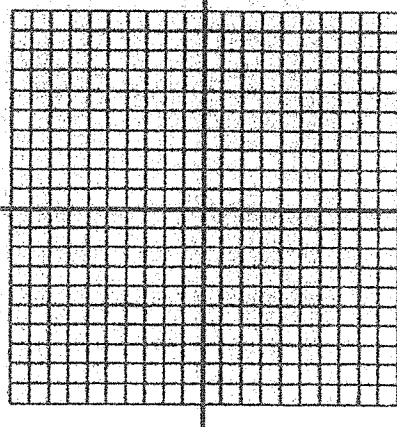   X = _____ , _____

7. $y = 4x^2 - 8x + 3$
   Vertex: (   )
   X = _____ _____
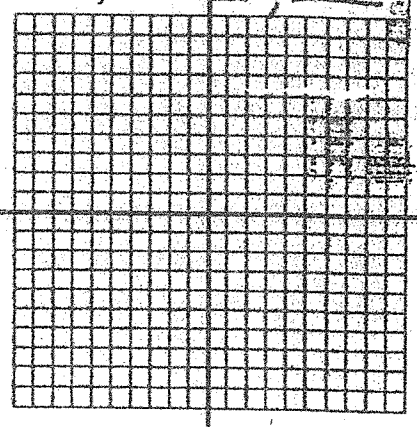
8. $f(x) = 2x^2 - 8x + 6$
   Vertex: (   )
   X = _____ , _____

9. $y = 4x^2 - 16$
   Vertex: (   )
   X = _____ , _____

Vertical Motion   In Exercises _____ use vertical motion model $h = -16t^2 + vt + s$, where h is the height (in feet), t is the time in motion (in seconds), v is the initial velocity (in feet per second), and s is the initial height (in feet). Solve by factoring.

10. A baseball player releases a baseball at a height of 6 feet with an initial velocity of 46 feet per second. Find the time (in seconds) for the ball to reach the ground.

11. Refer to question 10, how high did the baseball get thrown?

12. A miniature rocket is launched off a roof 25 feet above the ground with an initial velocity of 30 feet per second. How much time will elapse before the rocket reaches the ground?

13. Refer to question 12, how high did the rocket get in the air?

14. The cross section of a wooden storage structure can be modeled by the polynomial function

$$y = \frac{-15}{400}(2x - 35)(2x + 35)$$

where x and y are measured in feet, and the center of the structure is where $x = 0$. Explain how to use the algebraic model to find the width of the structure. What is the structure's width? Use the model to find the coordinates of the center of the structure. How tall is the structure?