Take Home Quiz # 4

- Justify and show the means by which you arrive at your answers using equations, pictures, calculations, geometry, algebra steps, and/or technology. *You will not receive full credit if your answer is not supported by work that is legible and organized.*
- Place a box around your final answer. *It won't be graded if you do not do this!*
- Make your answers and their presentation in a professional and easily understandable format … make this your clearest and best work! *Points will be deducted for disorganized , sloppy work.*

9.4

1. Find all real solutions. $x^4 - 9\,x^2 + 20 = 0$

2. Find all real solutions. $\left(2 - \sqrt{x}\right)^2 + 3\left(2 - \sqrt{x}\right) - 10 = 0$

3. Find the $x - $ intercepts of this function. If none exist, state this. $f(x) = x^{\frac{1}{2}} - x^{\frac{1}{4}} - 6$

9.5

4. The product of two consecutive even integers is 360. Write a quadratic equation to find the integers.

5. The flight of a baseball can be modeled by the function h(x) = -.02x^2 + 2.4x + 3.
   Where h = height of the ball in feet and x = distance from home plate in feet. Use the quadratic formula to find how long the ball travels before it hits the ground.

9.6

6. for the function $f(x) = -3(x + 5)^2 - 13$,
   a. Does the parabola open up or down? Explain how you know this without graphing the equation.

   b. What is the vertex of the parabola?

7. Given the function $g(x) = x^2 + 2x - 6$

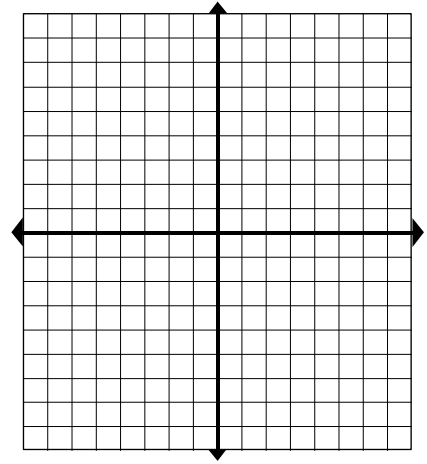   c. Find the vertex of the parabola

   d. Give the axis of symmetry

   e. Find the exact x-intercepts of the parabola

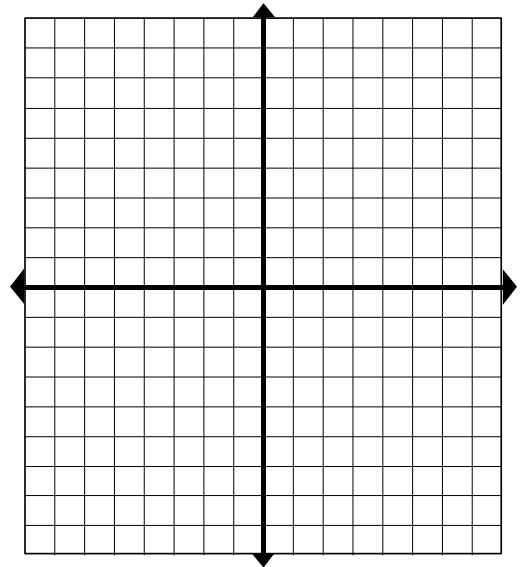   f. Find the y-intercept of the parabola

8. Sketch a graph of $g(x) = x^2 + 2x - 6$ on the grid to the right.
   Show your scale and plot key points.

   Give the domain and range of the function.
   Write your answers in interval notation.

9.7

9. Complete the square to write the function in *vertex form* . Then Find the coordinates of the vertex and draw
   a graph of f(x) = 3x² - 18x + 15

10. The flight of a baseball can be modeled by the function h(x) = -.02x² + 2.4x + 3.
    Where h = height of the ball in feet and x = distance from home plate in feet. Find the maximum
    height it reaches. Describe/show your process.