\_\_\_\_\_

- 1. What does it mean to FACTOR an expression, for example  $x^2 + 5x 14$ ? Be specific.
- 2. Use an area model to factor:

a. 
$$x^2 - 8x - 2$$

- 20

b.  $10x^2 + 13x - 3$ .

3. What is the Zero Product Property (you should have notes about this) How can you use the Zero Product Property to solve equations like  $10x^2 + 13x - 3 = 0$ ?

4. Solve each equation below. Show your work. a. (x-3)(x+7) = 0 b. (2x-5)(x+3) = 0 c.  $x^2 + 5x - 6 = 0$ 

d. 
$$2x^2 + 11x + 12 = 0$$
 e.  $x^2 - 11x = 0$  f.  $\bigvee_{x}^2 + 2 = \frac{3}{x^{-1}}$ 

- 5. A model rocket was placed on the Lincoln football field and launched. The rocket follows the path r(x) = -2(x-2)(x-12) where x= horizontal yards traveled and y = height in feet.
  - a. From what yard line was the rocket launched from? How do you know?
  - b. From what yard line did the rocket land? How do you know?

c. What was the maximum height the rocket reached? Explain or show how you found your answer.

- 6. A second model rocket was launched from 3 yard line on the the Lincoln football field. The rocket reached its highest point of 48 feet directly above the 7 yard line.
  - a. What yard line did the rocket land on? Show or explain how you know.

b. Write the quadratic function for this rocket in FACTORED FORM: y = #(x - #)(x - #). Show how you found the dilation factor.