Algebra 1 Name_____

9.8 Quadratic Modeling HW

Date_____ Algebra____

1) The captain of a football team throws a football straight up in the air. The height of the football (y) and the time it's been in the air (x) can be represented by $y = -\frac{1}{2}x^2 + 5x$.

   a. what is the maximum height of the football?

   b. After how many seconds does the football hit the ground?

2) Ally flips open a book at notices that the product of the two page numbers is 156.

   Write a quadratic equation that represents this situation.

   Solve your quadratic to determine the page numbers:

3) When 36 is subtracted from the square of a number the result is five times the number.

   Write a quadratic equation that models the situation. _____

   Solve your equaiton to determine the two possible values of the number:

4) Byron is 3 years olde than Doug. The product of their age is 40.

Write a quadratic equation that represents this situation:

How old is Doug?

Solve each equation by factoring.

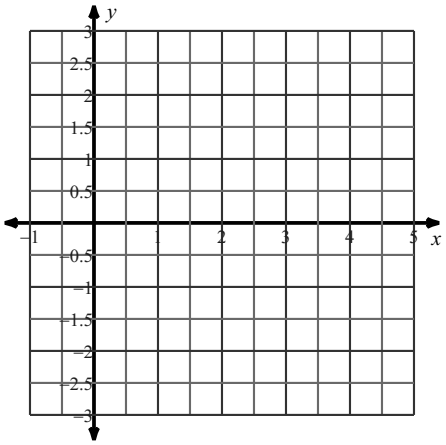
5) $3n^2 - 28n = -4n^2$

Solve each equation by completing the square.

6) $n^2 + 16n = -96 - 4n$

Sketch the graph of each function.

7) $f(x) = -x^2 + 2x + 1$



8) $f(x) = 2x^2 + 12x + 22$