MAT 011, Quiz #10, Fall 2015   Name _____**KEY**_____

Instructions: Show all work. Give exam answers.

1. Factor completely.
   a. $2x^2 - 9x - 5$

   $(2x + 1)(x - 5)$

   b. $12x^3 + 11x^2 + 2x$

   $x(12x^2 + 11x + 2)$

   $x(3x + 2)(4x + 1)$

   c. $54a^2 + 39ab - 8b^2$

   $54a^2 + 48ab - 9ab - 8b^2$

   $6a(9a + 8b)$

   $-b(9a + 8b)$

   $(6a - b)(9a + 8b)$

   432
   1,432
   2,216
   3,144
   4,108
   6,72
   8,54
   9,48

2. Determine if the polynomial is a perfect square trinomial.
   a. $m^2 + 10m + 25$

   yes

   $(m + 5)^2$

   c. $4x^2 - 9x - 9$

   no

   $2 * 3 * 2 \neq 9$

   b. $x^2 + 16$

   no

   prime

   d. $m^2 + 18m + 81$

   yes

   $(m + 9)^2$

3. Factor using the formulas:
$$a^2 - b^2 = (a + b)(a - b)$$
$$a^3 + b^3 = (a + b)(a^2 - ab + b^2)$$
$$a^3 - b^3 = (a - b)(a^2 + ab + b^2)$$

   a. $x^2 - 36$

   $(x - 6)(x + 6)$

   b. $8a^3 - 1$

   $(2a - 1)(4a^2 + 2a + 1)$

   c. $125a^4 + 64ab^3$

   $a(125a^3 + 64b^3)$

   $a(5a + 4b)(25a^2 - 20ab + 16b^2)$