

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Instructions:** Please complete the following problems.**Problem 1.** Identify all of the coefficients (signify which one is the leading coefficient), and degree of the polynomial  $5x^2 - 7x^3 + 8x + 2$ **Problem 2.** Perform the indicated operation:  $(5x + 3)^2$ **Problem 3.** Find and simplify the product:  $(x^2 + 3x + 2)(x + 4)$ **Problem 4.** Factor the polynomial:  $x^2 - 12x + 32$ **Problem 5.** Factor the polynomial:  $2x^2 - 7x + 3$ **Problem 6.** Factor the polynomial:  $3x^2 - 5x - 2$ **Problem 7.** Factor the polynomial:  $x^3 - 5x^2 + 4x - 20$ **Problem 8.** Is the following a polynomial:  $x^{-2} + 3x + 5$ ?**Problem 9.** Simplify:  $(5x^2 + 3x - 1) - (x^2 - 2x + 3) + (2x^2 + x + 5)$ **Problem 10.** What is the coefficient of the  $x$  term in the product  $(3x - 5)(x + 2)$ **Problem 11.** When the leading coefficient of a trinomial is not 1, which factoring method do you use?**Problem 12.** Factor the polynomial:  $x^2 - 9$