MATH 096   Dr. Katiraie   Chapter 5 Polynomials, Factoring, and Solving Equations
Practice Problems

1) **Perform the indicated operations on the following polynomials:**

a) $(3x^2 - 7x - 9) + (5x^2 - 9x + 8)$	b) $(6x^2 - 8x) - (4x^2 - 2x - 5)$
c) $(4a^2 - 3ab + 5b^2) - (3a^2 - 3ab + 4b^2)$	d) $-2x^3(3x^4 - 2x^2 + 4)$

2)   **Perform the indicated operations:**

a) $(3x - 5)(2x + 3)$	b) $(3x + 2)^2$
c) $(3x - 2)^2$	d) $(2x - 5)(2x + 5)$

3)   **Perform the indicated operation:** $(3x + 1)(9x^2 - 3x + 1)$

4) Factor each of the following:

a) $5x^4 - 15x^3$	b) $a(x + 2) - 3(x + 2)$
c) $3x^2 + 6xy - 5x - 10y$	d) $5x^3 + 20x^2 - 105x$

5) Factor the following (if a polynomial cannot be factored, write "prime"):

a) $x^2 - 6x - 27$	b) $x^2 + 7x + 10$
c) $x^2 - 3x + 9$	d) $x^2 - 10x + 25$
e) $x^3 - 27 y^3$	

6) Factor the following (if a polynomial cannot be factored, write "prime"):

a) $x^2 - 81$	b) $x^2 + 81$
c) $x^2 + 18x + 81$	d) $x^2 - 18x + 81$

7) Solve the equations:

a) $x^2 + 4x - 3 = 0$	b) $(x-3)^2 = 16$
c) $2y^2 - 6y = 1$	d) $3x^2 - 2x - 7 = 0$

8) If $f(x) = x^3 - x^2 + 1$, find each of the following values:

a) $f(2)$
b) $f(-2)$
c) $f\left(\dfrac{1}{2}\right)$
d) Find x when f(x) = 1