Name: _____

Show all your work and simplify your answers unless otherwise specified. If you do not turn in a rewrite within a week (or after the fifth attempt), your score will be solidified.

1. Simplify the following exponential expressions. Show your work.

   (a) $(2x^2y^3)^3(3x^5y)^2$

   (b) $\left(\dfrac{5x^2}{y^4}\right)^3$

2. Simplify the following expressions:

   (a) $\sqrt{\dfrac{49}{144}}$

   (b) $\sqrt[3]{125x^3} + \sqrt[3]{64x^6}$

3. Simplify using the properties of exponents:

(a) $\left(3x^{3/5}\right)\left(5x^{3/10}\right)$

(b) $\dfrac{27x^{3/2}y^2}{3x^3y^{1/3}}$

4. Perform the indicated operation:

(a) $(3x+4)^3$

(b) $(5x-7)(3x-2)-(4x-5)(6x-1)$

5. Factor the following polynomials:

(a) $x^3 + 3x^2 - 25x - 75$

(b) $6x^2 - 18x - 60$