Math 126A Name_____

Exam 1

Spring 2015 Show All Work

1) Simplify each expression and eliminate any negative exponents. Assume that all letters denote positive numbers.

a) $\frac{24\,x^2\,y^{-2}}{6\,x^{-4}\,y^3}$

b) $(27x^{-6}y^3)^{2/3}$

2) Simplify the expression. Leave in radical form.

a) $\sqrt[3]{8\,x^4}$

b) $\sqrt{75} - \sqrt{48}$

3) Multiply and simplify $(x - 2)(x^2 + x + 3)$

4) Factor the expressions completely

a) $2x^2 - 5x - 7$

b) $9x^2 - 4$

c) $x^3 - 8$

d) $2x^{3/2} + 3x^{-1/2}$

5) Perform the indicated operation and simplify

a) $\frac{x^2-x-6}{x^2+3x} \div \frac{x-3}{x+3}$

(Perform the indicated operation and simplify)

b) $\frac{1}{x^2 + 6x + 8} - \frac{3}{x + 4}$

6) Rationalize the denominator of $\frac{3}{4 + \sqrt{2}}$

7) Phyllis invested 15,000, a portion earning a simple interest rate of 4.5% per year and the rest earning a simple interest rate of 5% per year. After 1 year the total interest earned on these investments was $723 . How much money did she invest at each rate?

8) Solve the following equations

a) $\frac{2x-1}{x+3} = \frac{4}{5}$

b) $\frac{4}{x-1} + \frac{2}{x+1} = \frac{26}{x^2-1}$

9) Find all solutions of the equation.

a) $x^2 - 5x - 6 = 0$

b) $x^2 - 6x + 3 = 0$