

# Precalc HW #2

Note Title

9/3/2009

① Simplify the following expressions.

$$a) \frac{5t^2 s^{-3}}{15t^{-3} s^2}$$

$$b) \sqrt[3]{\sqrt[5]{x^{15} y^{30}}}$$

② Factor out the indicated quantity even if the result looks more complicated than the original

$$a) 5x^3 - 7x^2 + 2x \quad - \text{factor } x^{1/2}$$

$$b) 5x^2 - 7x + 2 \quad - \text{factor } x^2$$

③ Factor to simplify

$$a) (3+x)^{-4/5} x + (3+x)^{3/5}$$

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

④ Are the following polynomial, fractional, or rational expressions?

$$a) \frac{1}{2}x^5 - 7x + \frac{3}{9}$$

$$b) 2x^2 + 4x^{-4}$$

$$c) \frac{x + 1/2}{1 + \sqrt{x}}$$

$$d) \frac{\sqrt{3}x}{x^2 - 1}$$

⑤ Find the domain of the following expressions:

a)  $3x^2 - 9x + 5$

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

c)  $\frac{\sqrt{x}}{x-7}$

d)  $\sqrt{x-5}$

e)  $\frac{x^2}{\sqrt{x-1}}$

f)  $\frac{x+1}{x^2-1}$

⑥ Simplify  $\frac{x^2-1}{x^2-4} \div \frac{x^2+x-2}{x^2+5x+6}$