ALGEBRA II
HOMEWORK #1-7
SIMPLIFYING RATIONAL EXPRESSIONS

Simplify each of the following expressions.

1) $\frac{12x^2-32x}{3x-8} = \frac{4x(3x-8)}{3x-8} = 4x$

$12x^2-32x$
$4x(3x-8)$

2) $\frac{125-5x^2}{x^2+4x-45} = \frac{5(5+x)(5-x)}{(x-5)(x+9)} = \frac{-5(5+x)}{x+9}$

$125-5x^2$
$5(25-x^2)$
$5(5+x)(5-x)$

$x^2+4x-45$
$(x-5)(x+9)$

3) $\frac{x^2-4}{3x^2-2x-8} = \frac{(x+2)(x-2)}{(x-2)(3x+4)} = \frac{x+2}{3x+4}$

x^2-4
$(x+2)(x-2)$

$3x^2-2x-8$ (M 24, A)
$3x^2-6x+4x-8$
$3x(x-2)+4(x-2)$
$(x-2)(3x+4)$

4) $\frac{x^3+3x^2-2x-6}{x^2-9} = \frac{(x+3)(x^2-2)}{(x+3)(x-3)} = \frac{x^2-2}{x-3}$

x^3+3x^2-2x-6
$x^2(x+3)-2(x+3)$
$(x+3)(x^2-2)$

x^2-9
$(x+3)(x-3)$

(*) SKIP

Re-write each of the following rational expressions into quotient-remainder form.

5) $\frac{x^3+7}{x^3+4}$

$\frac{x^3+4+3}{x^3+4}$

$\frac{x^3+4}{x^3+4} + \frac{3}{x^3+4}$

$1 + \frac{3}{x^3+4}$

6) $\frac{2x^2+3x-1}{2x^2+3x+5}$

$\frac{2x^2+3x+5-6}{2x^2+3x+5}$

$\frac{2x^2+3x+5}{2x^2+3x+5} - \frac{6}{2x^2+3x+5}$

$1 - \frac{6}{2x^2+3x+5}$

Factor each of the following.

7) $27x^3 + 1$

$a = 3x$

$b = 1$

S AP

$(3x+1)(9x^2 - 3x + 1)$

8) $x^3y^6 - 64$

$a = xy^2$

$b = 4$

S AP

$(xy^2 - 4)(x^2y^4 + 4xy^2 + 16)$

Self-Reflection...

☐ I got	☐ I almost got it...	☐ I need more practice…	☐ I don't get it… Help!