

Name: _____

Date: _____

HW Pre-Calculus 11 Section 4.2 Multiplying and Dividing Rational Expressions

1. Multiply or Divide each of the following rational :

a) $\frac{8x}{9} \times \frac{27y}{24x^3}$	b) $\frac{14a^2}{2b} \times \frac{8b^3}{21a}$	c) $\frac{14x^2y}{6xy} \times \frac{(4xy)^2}{8xy}$
d) $\frac{-6x}{14} \div \frac{12x^2}{35x}$	e) $\frac{-15xy}{9y^3} \div \frac{9x^2}{-16xy}$	f) $\frac{2x+1}{15y^2} \div \frac{12xy}{27y^3} \div \frac{8x+4}{9xy}$
g) $\frac{8x-4}{x-3} \times \frac{2x+6}{3x-6}$	h) $\frac{5x^2-10}{3x-y} \times \frac{27x-9y}{4x^2-8}$	i) $\frac{3x+6}{3x-4} \times \frac{6x^2-8x}{4x+8}$

2. Factor and simplify. Then state all the NPV's:

a) $\frac{(2x)^2}{5y} \times \frac{10x}{8y} \div \frac{15x}{(4y)^2}$	b) $\frac{3(3x-4)}{8} \times \frac{6x}{12(3x-4)}$	c) $\frac{2x-3}{x+2} \div \frac{3x+4}{x^2-9}$
NPV's:	NPV's:	NPV's:

m) $\frac{3x^2 + 3x - 6}{x^2y - 7xy} \times \frac{x^2y - 13xy + 42y}{6x^2 + 12x}$	n) $\frac{x+2y}{x-3y} \times \frac{x^2-9y^2}{x^2-4y^2} \div \frac{x+3y}{x-2y}$	o) $\frac{(3a+7b)^2}{2a-5b} \times \frac{4a^2-25b^2}{9a^2-49b^2} \div \frac{2a+5b}{3a-7b}$
NPV's:	NPV's:	NPV's:

3. A student simplifies the following expressions shown below. Indicate all the mistakes shown:

$s1: \frac{x-5}{5-x}$ $s2 := \frac{x-\cancel{5}}{\cancel{5}-x}$ $s3 := \frac{\cancel{x}}{-\cancel{x}}$ $s4 := \frac{1}{-1}$ $s5 := -1$	$s1: \frac{a^2+6a+8}{a^2+8}$ $s2 := \frac{a^2+6a+\cancel{8}}{a^2+\cancel{8}}$ $s3 := \frac{a^2+6a}{a^2}$ $s4 := \frac{a(a+6)}{a^2}$ $s5 := \frac{a+6}{a}$	$s1: \frac{24a}{7b} \div \frac{13b}{21ab^3} \times \frac{3a}{b^2}$ $s2 := \frac{24a}{7b} \times \frac{21ab^3}{13b} \times \frac{b^2}{3a}$ $s3 := \frac{24a}{\cancel{7b}} \times \frac{21ab^3}{13\cancel{b}} \times \frac{b^2}{\cancel{3a}}$ $s4 := \frac{24ab^2}{13}$
$s1: \frac{a^2-16}{a+7} \div \frac{a^2+16}{a-7}$ $s2 := \frac{a+7}{a^2-16} \times \frac{a^2+16}{a-7}$ $s3 := \frac{a+7}{a^2-16} \times \frac{a^2+16}{\cancel{a-7}}$ $s4 := \frac{1}{(a-4)(\cancel{a+4})} \times \frac{(\cancel{a+4})(a+4)}{-1}$ $s5 := -\frac{\cancel{a+4}}{\cancel{a-4}} = -1$	$s1: \frac{x^2-6}{x+3} \div \frac{x^2-9}{x-3}$ $s2 := \frac{(x+\sqrt{6})(x-\sqrt{6})}{x+3} \times \frac{x-3}{x^2-9}$ $s3 := \frac{(x+\sqrt{6})(x-\sqrt{6})}{\cancel{x+3}} \times \frac{\cancel{x-3}}{(\cancel{x-3})(x+3)}$ $s4 := (x+\sqrt{6})(x-\sqrt{6})$	

4. What are the NPV's of the following rational expression? $\frac{2x}{x^2+9} \times \frac{3x^2}{x^2+1}$

5. Simplify each of the following rational expressions and indicate the NPV

a) $\frac{\frac{2}{3x} + 4}{5 - \frac{2}{x}}$	b) $\frac{\frac{1}{3} + 6x}{\frac{1}{9} - 3x}$	c) $\frac{\frac{1}{4x} + 7x}{\frac{1}{6} - \frac{3}{2x}}$
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6. Simplify and find all the NPV's:

$$\frac{y + \frac{2y}{y+2}}{1 + \frac{4}{y^2-4}}$$