

Unit 1 (Chapter 2) – Polynomial and Rational Expressions

Extra Practice

1. Expand and Simplify

a) $(3a - 4b)(2a - 5ab + 3b)$

b) $(3x - 5)^2$

c) $(2x + 3)^3$

2. Factor by grouping

a) $3m^3 - 15m^2 - 2m + 10$

b) $x^2 - 10x + 25 - 4y^2$ (*hint – square minus square*)

3. Explain in your own words why we MUST state restrictions on Rational Expressions before doing any cancelling.

4. Simplify the following rational expressions:

$$\text{a) } \frac{x^2 - 7x - 60}{x^2 - 4} \times \frac{14 - 7x}{(x - 12)^2}$$

$$\text{b) } \frac{-3x^2 + 108}{3x^2 + 2x - 5} \times \frac{3x^2 + x - 10}{x^2 + 8x + 12}$$

$$\text{c) } \frac{x^2 - 10x + 25}{2x^2 - 11x + 5} \div \frac{x^2 + 7x + 12}{2x^2 + 5x - 3}$$

$$\text{d) } \frac{2x}{x^2 + x - 6} + \frac{x - 4}{x^2 + 2x - 3}$$

$$\text{e) } \frac{2}{x^2 + 4x - 60} - \frac{3}{x^2 - 36}$$

$$\text{f) } \frac{2x}{x^2 - x - 2} + \frac{x^2 + 3x - 10}{x^2 - 5x + 6} \times \frac{3x + 12}{x^2 + 2x - 8}$$

11 Functions – Unit 1 (Chapter 2) Rational Expressions Success Criteria Self-Assessment

Name: _____

In the following table are the success criteria or this unit. Please read each statement and rate yourself on how comfortable you are with that statement. 1 is not at all. 5 is full comfortable, ready for the test.

Once done, go back and revisit your areas of struggle. Practice until you feel confident! Then, work on the practice test on the next page. Enjoy!! :)

“I can...”

recognize that functions can be equivalent at only a single value but not all values	1	2	3	4	5
add and subtract polynomials by collecting like terms	1	2	3	4	5
expand polynomials using the distributive property (FOIL)	1	2	3	4	5
factor polynomials using a variety of methods (GCF, $a=1$, decomposition, difference of squares, perfect squares)	1	2	3	4	5
simplify rational expressions by dividing out the GCF	1	2	3	4	5
determine the restrictions from the factored form of the rational expression	1	2	3	4	5
multiply rational expressions by following the appropriate steps	1	2	3	4	5
divide rational expressions by multiplying by the reciprocal of the divisor, then following the multiplication steps	1	2	3	4	5
determine the restrictions from the factored form of the rational expression	1	2	3	4	5
add and subtract expressions through determining the LCD	1	2	3	4	5
recognize that the LCD is not always the product of all the denominators	1	2	3	4	5
identify restrictions from the factored form of the LCD	1	2	3	4	5

Practice Test

Simplify each expression. State the restrictions.

1)
$$\frac{x-7}{x^2-12x+35} \cdot \frac{x^2-6x-7}{x-7}$$

2)
$$\frac{7v+49}{8v^2} \div \frac{v^2+3v-28}{8v^2}$$

3)
$$\frac{1}{n-5} \div \frac{n-7}{8n-56}$$

4)
$$\frac{6}{n-1} - \frac{8}{5}$$

$$5) \frac{1}{x+3} \div \frac{7}{7x-35}$$

$$6) \frac{v+3}{v-7} + \frac{7}{6v}$$

$$7) \frac{7}{3} - \frac{r+6}{8r^2+4r}$$

$$8) \frac{7r}{4r+24} + \frac{5r}{2r}$$

$$9) \frac{x+7}{9x^2-18x} \div \frac{4x^2}{9x^2-18x}$$

$$10) \frac{x-3}{6x-48} - 5$$