Name _____ Introduction to Technical Mathematics
Date _____ Class #11-A www.wnyssis.com

Algebraic Fractions – Multiplication and Division / Addition and Subtraction

Quality – Accuracy – Transfer – 100%

Section 1. Some That Are A Little Tougher. "O.T.T.S."

o. $\dfrac{4x^2 + 9x - 9}{4x^2 - 8x}$

p. $\dfrac{5a^2 + 39ab - 8b^2}{5a^2 + 4ab - b^2}$

Section 2. Example Problems: Multiplication and Division.

4. Multiply and/or Divide the Following Polynomials: Watch Your Signs!

a. $\dfrac{30m^2}{18n} \cdot \dfrac{6n}{5m}$

b. $\dfrac{16c^3}{21d^2} \div \dfrac{24c^4}{14d^3}$

c. $\dfrac{a^2 - b^2}{10x^3} \cdot \dfrac{5x^2}{2a + 2b}$

d. $\dfrac{8x^2}{x^2 - 25} \div \dfrac{4x}{3x + 15}$

5. $\dfrac{6r^2}{5s^2} \cdot \dfrac{10rs}{6r^3}$

6. $\dfrac{5x - 5y}{x^2y} \cdot \dfrac{xy^2}{x^2 - y^2}$

Section 3. More Practice: Watch Your Signs.

7. $\dfrac{(a+3)^2}{x^2} \cdot \dfrac{4x^2}{4a+12}$

8. $\dfrac{a^2-7a-8}{2a+2} \cdot \dfrac{5}{a-8}$

9. $\dfrac{y^2-81}{(y+9)^2} \cdot \dfrac{10y+90}{5y-45}$

10. $\dfrac{2x-2}{30x^2} \cdot \dfrac{9x^2-27x}{x^2-9} \cdot \dfrac{x^2-2x-15}{x^2+4x-5}$

Section 4. Division of Fractions: 4 Good ones.

11. $8rs \div \dfrac{24r}{s}$

12. $\dfrac{3x-3y}{xy^2} \div \dfrac{x^2-y^2}{x^2y}$

13. $\dfrac{y^2-3y-10}{8y^2} \div \dfrac{2y-10}{16y^2}$

14. $\dfrac{y^2-49}{(y+7)^2} \div \dfrac{3y-21}{2y+14}$

One that is a little Tougher:

15. $\dfrac{3x^2+10x-8}{36x^2-16} \times \dfrac{9x^2+15x+6}{x^2+3x-4}$

Chapter 9.3: Algebraic Fractions, Addition and Subtraction

The Need to "BUILD" a Common Denominator by Multiplication .

1. Rewrite the following as equivalent fractions with a common denominator by "building" that common denominator by multiplication.

a. $\dfrac{3}{12};\ \dfrac{1}{8}$

b. $\dfrac{1}{3};\ \dfrac{5}{x}$

_____ _____

c. $\frac{1}{6c^2d^2}; \frac{5}{10cd}$

d. $\frac{5}{4(c+1)}; \frac{5}{6(c+1)}$

e. $\frac{5}{x^2-1}; \frac{1}{3x+3}$

f. $\frac{1}{3x-4}; \frac{5}{4-3x}$

g. $\frac{x-1}{4x^2-36}; \frac{x+7}{3x^2+18x+27}$

h. $\frac{5}{2x^3-3x^2+x}; \frac{x}{x^4-x^2}; \frac{2-x}{2x^2+x-1}$

Practice: **The "Negative" FOIL**

Simplify: $(4x^2-5)-(3x+2)(x-3)$

Simplify: $(x+7)(2x-3)-(3x+4)(x-5)$

Chapter 9.4: Algebraic Fractions, Addition and Subtraction – Unlike Denominators

Thoughts to keep in mind:

1. _____
2. _____
3. _____
4. _____
5. _____

3. Add the following fractions with UNLIKE Denominators.

a. $\frac{7y}{8} + \frac{3y}{10} - \frac{y}{5}$

b. $\frac{1}{x} + \frac{1}{y} - \frac{1}{z}$

c. $\frac{m+9}{2} + \frac{m-3}{3}$

d. $\frac{3a-2}{5} - \frac{2a+4}{15}$

e. $\frac{y-4}{4y^2} + \frac{3y-5}{3y}$

f. $\frac{3x-4}{5x} - \frac{2x-3}{20x} + \frac{5x}{2}$

g. $\frac{x+y}{x} - \frac{y-z}{y} - \frac{z-x}{z}$

h. $\frac{2}{3y} - \frac{4y-7}{6y^2} + \frac{3y-2y^2}{4y^3}$

Some that area little Tougher.

i. $\frac{q-3}{q^2-q-12} + \frac{q+1}{q^2-4q}$

j. $\frac{2}{3} + \frac{3}{x+1} - \frac{x}{x^2-1}$

Homework Section

Section(s)	Page(s)	Problem(s)
9.2	308 → 309	9 → 41 E.O.O.
9.3	313 → 314	1 →39 E.O.O.
9.4	318 → 319	1 →33 E.O.O.