Name:_____ Class #:_____

LESSON 10: Addition, Subtraction and Least Common Denominators

- ☐ The sum of two rational expressions
- ☐ The difference of two rational expressions
- ☐ Least common multiple (LCM)

☐ Least common denominator (LCD)

☐ To find the Least common denominator (LCD)

Fundamental Principle of Fractions: $\frac{AB}{AC} =$

Addition of Fractions: $\frac{A}{D} + \frac{B}{D} =$

Addition of Fractions: $\frac{A}{D} - \frac{B}{D} =$

For problems 1 – 6, start with the given expression and use a series of operations to create the **equivalent** expressions to combine these fractions together. Remember, you can change the way a number looks without changing the VALUE by multiplying or dividing by 1 (in any form you want).

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1. $\frac{4x}{2(x^2-1)} - \frac{4}{2(x^2-1)}$

Name:_____ Class #:_____

2. $\frac{t^2-5t}{t-1}+\frac{5t-t^2}{t-1}$

3. $\frac{2a^2+15}{a^2-7a+12}-\frac{11a}{a^2-7a+12}$

Name:_____ Class #:_____

For problems 4 – 8, find the LCM between the two numbers using any method.

4. 12 AND 30

5. 15 AND 50

Name:_____ Class #:_____

6. $2(y-3)$ AND $6(y-3)$

7. x^2-4 AND x^2+5x+6

OPTIONAL CHALLENGE PROBLEMS: Find the LCM of the following two expressions

8A. $6x^3-24x^2+18x$

8B. $4x^5-24x^4+20x^3$

Name:_____ Class #:_____

LESSON 10: Addition and Subtraction with Unlike Denominators

- ☐ The add or subtract rational expressions having different denominators
- ☐ When factors are opposite: (a – b) = -1 (b – a)

For problems 9 – 14, find the least common denominator. Then, add or subtract the fractions below.

9. $\frac{5x^2}{8} + \frac{7x}{12}$

10. $\frac{2a}{a^2-1} + \frac{1}{a^2+a}$

Name:_____ Class #:_____

11. $\frac{7}{x^2-64}+\frac{3}{x+8}$

12. $\frac{6}{x-2}+\frac{3}{2-x}$

OPTIONAL CHALLENGE PROBLEMS

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

14. $\frac{1}{x^2+5x+6}-\frac{2}{x^2+3x+2}+\frac{1}{x^2-3x-4}$