Name: _____ **Precalculus Unit 5, Lesson 8**

Aim: How do we perform partial fraction decomposition? (Day 2)

I. Do Now:
Find the partial fraction decomposition.
Then check your answer by graphing:
Y_1 = the given fraction
Y_2 = the partial fraction decomposition
How will the graphs confirm whether your answer is correct?

1. $\dfrac{2x-17}{x^2-11x+28}$

Recall:
(1) Divide if $D_N \geq D_D$.
(2) Factor denominator completely (over set of real numbers).
(3) Linear denominators have constant numerators
(4) Quadratic denominators have linear numerators.
(5) Repeated factors will be covered in tomorrow's lesson.

Two methods:
1. "Friendly" Values 2. System of Equations

II. More Practice: Find each partial fraction decomposition.

2. $\dfrac{3x^2-4x-46}{x^2-x-20}$

3. $\dfrac{3x^2+7x-2}{x^3-x}$

4. $\dfrac{3x^2-x-1}{x^3+x^2+2x+2}$

5. $\dfrac{7x^2-82x+279}{(x+5)(x-3)(x-7)}$

HW42
• p. 500: 57
• p. 158: 51 [but change denominator to $(x+1)$]
• Decompose: (a) $\dfrac{3}{x^2+x-2}$

(b) $\dfrac{x^2+5}{(x+1)(x^2-2x+3)}$

(c) $\dfrac{x^2-x}{x^2+x+1}$