Name:_____ Date:_____

Math 10/11 Honors HW Section 5.6 Partial Fractions:

1. How would you split the rational expression into separate fractions when all the binomials in the denominator are unique linear binomials? Explain:

Ie: $\frac{3x+2}{(x+4)(x-5)}$

2. How would you split the rational expression into separate fractions when the binomials in the denominator NOT unique linear binomials? Explain:

Ie: $\frac{2x-1}{(x+1)(x-4)^2}$

3. How would you split the rational expression into separate fractions when the binomials in the denominator are quadratic? Explain: Write the following as a partial fraction:

Ie: $\frac{2x+3}{(x-1)(x^2+9)}$

4. Split the following rational expressions into partial fractions:

a) $\frac{11}{(3x-1)(6x+9)}$	b) $\frac{10}{(2x+1)(x+3)}$

c) $\frac{2x}{(x+1)(x-2)}$	d) $\frac{3x+5}{(x-3)(2x+1)}$
e) $\frac{3x-4}{(2x-1)(3x+2)}$	f) $\frac{2x^2+3}{(x+1)(2x-1)(3x+2)}$
g) $\frac{5x-1}{(x-1)(x-2)(x-3)}$	h) $\frac{2x^2+2x-3}{(x-1)(x+2)(x-3)}$

5. Express the following as a sum of rational expression:

a) $\dfrac{x^2+5}{(x-1)(x-2)^2}$	b) $\dfrac{2x-1}{x^2(x+3)}$
c) $\dfrac{x^2-x+1}{(x+1)(x+2)^2}$	d) $\dfrac{3x-4}{(x+2)(x^2+9)}$
e) $\dfrac{x^2-x+1}{(x+2)(2x^2+3)}$	f) $\dfrac{x^3+2x-1}{x^2(x-3)}$

g) $\frac{5x}{(x^2+x+1)(x-2)}$	h) $\frac{x^2-3x-7}{(x^2+x+2)(2x-1)}$
i) $\frac{13}{(2x+3)(x^2+1)}$	j) $\frac{x}{(x^2-x+1)(3x-2)}$

6. What process would you need to perform first before splitting a rational expression into partial fractions if the degree of the numerator is greater than the degree in the denominator? Explain:

7. Express the following as partial fractions:

a) $\frac{x^3+x^2-3x+5}{(x-1)(x-3)}$	b) $\frac{x^4+2x^2-3x+4}{(x-1)(x+2)(x-3)}$