

Objective: Find the partial fraction decomposition for rational expressions (what two or more fractions add to give you this rational expression)

Steps

1. Factor the denominator completely
2. Set = to a sum of rational fractions with a variable in the numerator for each factor.
3. Multiply by common denominator.
4. Plug in value that makes the factor = 0
5. Solve for A, B or C

Ex. $\frac{x+7}{x^2 - x - 6} = \frac{2}{x-3} + \frac{-1}{x+2}$

7

Ex. $\frac{9x+2}{x^2+x-6} = \frac{5A}{x+3} + \frac{4B}{x-2}$

$$9x+2 = A(x-2) + B(x+3)$$

$$\begin{array}{r} 2 \\ 20 \\ 4 \end{array} = 5B$$

$$4 = B$$

$$-3 - 25 = -5A$$

$$5 = A$$

Ex.

$$\frac{x^2 - x + 2}{x^3 - 2x^2 + x}$$

$$\frac{-x + 10}{x^2 + x - 12}$$

$$\frac{5x - 1}{x^2 - 2x - 15}$$

2/9

Pg. 614 #20, 22

Pg. 264 #10, 11, 14, 26, 34, 46