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. \[ \frac{x+7}{x^2 - x - 6} = \frac{2}{x-3} + \frac{-1}{x+2} \]
Ex. \[ \frac{9x + 2}{x^2 + x - 6} \]

\[ = \frac{5A}{x-2} + \frac{4B}{x+3} \]

\[ 9x + 2 = A(x-2) + B(x+3) \]

\[ 2 \quad 20 \quad 5B \]

\[ 1 \quad 5 \quad B \]

\[ -25 = 5A \]

\[ 5 = A \]
Ex. \[ \frac{x^2 - x + 2}{x^3 - 2x^2 + x} \]
\[
\frac{-x + 10}{x^2 + x - 12}
\]

\[
\frac{5x - 1}{x^2 - 2x - 15}
\]
Pg. 614  #20, 22

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Pg. 464  #10, 11, 14, 26, 34, 46