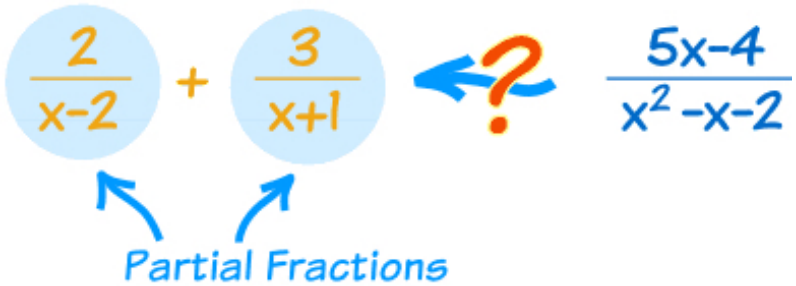
7.4 Partial Fractions (Quotients of Polynomials)

- Useful when denominator of quotient of polynomials and divides up into real factors that are linear or irreducible quadratic (or repeated)
- Based on adding fractions via a common denominator to make it easier to integrate



Factor	Term in Partial Fraction Decomposition
$(ax+b)$	$\frac{A}{ax+b}$
$(ax+b)^2$	$\frac{A}{ax+b} + \frac{B}{(ax+b)^2}$
(ax^2+bx+c)	$\frac{Ax+B}{ax^2+bx+c}$

7.4 Trig Substition

Use if you see any algebraic expression that looks like the Pythagorean theorem (i.e., $\sqrt{a^2 - x^2}$ or $\sqrt{x^2 + a^2}$) but regular w-sub fails.

- Identify what trig sub to use ($x = a\sin\theta, x = a\tan\theta$).
- Write x and dx.
- Sketch the triangle with the sides filled in.
- Convert the integral to one with only θ.
- Simplify the radical using algebra and/or the pic...