Integration using Partial Fractions

Obj: to integrate rational (fraction) functions by splitting them up with partial fractions.

Simplify:

$$\frac{2}{x+1} + \frac{3}{x-3} =$$

How would you go backwards?

$$\frac{5x-3}{x^2-2x-3}$$

$$\frac{7x+11}{x^2+4x-5}$$

$$\frac{6x+7}{(x+2)^2}$$

$$\frac{3x^2 - 7x + 12}{(x-2)(x^2 - 2x + 5)}$$

Ex:

$$\int \frac{5x-3}{x^2-2x-3}dx$$

Ex:

$$\int \frac{7x+11}{x^2+4x-5}dx$$

Ex:

$$\int \frac{6x+7}{(x+2)^2} \, dx$$

Ex:

$$\int \frac{3x^2 - 7x + 12}{(x-2)(x^2 - 2x + 5)}\,dx$$