

# Math 1b. Partial Fractions

Spring 2006

Evaluate each of the following integrals

1.  $\int \frac{5x + 7}{(x + 1)(x + 2)} dx$

2.  $\int \frac{x^2 + 3x - 1}{x(x + 1)(x - 2)} dx$

3.  $\int \frac{x^2 - 1}{x(x^2 + 4)} dx$

$$4. \int \frac{3x^2 + 7x + 5}{(x + 1)(x^2 + 2x + 2)} dx$$

$$5. \int \frac{4x^2 - 3x + 2}{x(2x - 1)^2} dx$$

*Hint:* Let  $\frac{4x^2 - 3x + 2}{x(2x - 1)^2} = \frac{A}{x} + \frac{B}{2x - 1} + \frac{C}{(2x - 1)^2}$ .

$$6. \int \frac{1}{x^2 + 2x + 2} dx = \int \frac{1}{(x^2 + 2x + 1) + 1} dx$$