

## Worksheet: Integration using Partial Fractions

1. Evaluate the following indefinite integrals.

$$(1) \int \frac{1}{2x^3 + x^2 - x} dx \qquad (2) \int \frac{3x^3 - 5x^2 - 11x + 9}{x^2 - 2x - 3} dx$$

$$(3) \int \frac{x^2 + 12x - 5}{(x + 1)^2(x - 7)} dx \qquad (4) \int \frac{8x^2 - 3x - 4}{(4x - 1)(x^2 + 1)} dx$$

$$(5) \int \frac{4x^3 + 2x^2 + 1}{4x^3 - x} dx \qquad (6) \int \frac{3x - 2}{x^3 + x^2 - x - 1} dx$$

$$(7) \int \frac{6x^2 - x - 1}{3x - 1} dx \qquad (8) \int \frac{3x + 5}{x^2 + 4x + 13} dx$$

$$(9) \int \frac{1}{x^2 - 4} dx \qquad (10) \int \frac{2x + 3}{x^2 - 9} dx$$

$$(11) \int \frac{2 - x}{x^2 + 5x} dx \qquad (12) \int \frac{x^2 - 1}{x^2 - 16} dx$$

$$(13) \int \frac{x^4 + x^3 + x^2 + 1}{x^2 + x - 2} dx \qquad (14) \int \frac{x^2 + x - 1}{x(x^2 - 1)} dx$$

$$(15) \int \frac{x + 7}{x^2(x + 2)} dx \qquad (16) \int \frac{x^5 + 1}{x^3(x + 2)} dx$$

$$(17) \int \frac{2x - 1}{x^2 - x - 6} dx \qquad (18) \int \frac{3x + 11}{x^2 - x - 6} dx$$