

Partial Fractions

BC Calc

1. Fraction can't be improper--if it is, divide and use the remainder
 2. Factor denominator
 3. Decompose the fraction into parts for each factor
 4. Multiply each by the common denominator
 5. Use factors = 0 to substitute and get system
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Use partial fractions to evaluate:

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

2. $\int \frac{x^2}{x^2 - 1} dx$

**3. $\int_2^3 \frac{3}{(x - 1)(x + 2)} dx$

Partial Fractions

Calculate the integrals.

$$1) \int \frac{1}{(x-5)(x-3)} dx$$

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

$$3) \int \frac{dz}{z^2 + z}$$

$$4) \int \frac{dP}{3P - 3P^2}$$

$$5) \int \frac{y+2}{2y^2 + 3y + 1} dy$$

$$6) \int \frac{3}{x^2 - 3x} dx$$

$$7) \int \frac{1}{x^2 - 1} dx$$

$$8) \int \frac{3x^2 - 7x - 2}{x^3 - x} dx$$

Find the exact region.

$$9) \text{ Bounded by } y = \frac{3x}{(x-1)(x-4)}, y = 0, x = 2, x = 3.$$