

Integrate using partial fraction method:

1. 
$$\int \frac{1}{a^2 - x^2} dx = \frac{1}{2a} \ln \left| \frac{a+x}{a-x} \right| + C$$

2. 
$$\int \frac{1}{x^2 - a^2} dx = \frac{1}{2a} \ln \left| \frac{x-a}{x+a} \right| + C$$

3. 
$$\int \frac{2x^3 + 8x}{2x^4 - 5x^2 + 3} dx \quad [\text{First use substitution } u = x^2 \text{ then partial fraction}]$$

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