Integration

Integration by Inspection: reversing the chain rule

$$y = 24(4x+2)^2$$
$$\int y\, dx = 2(4x+2)^3$$

Integration by substitution: substitute into the expression eliminating x. Remember to change the limits.

Integration by parts: the product rule for integration

$$\int u \frac{dv}{dx}\, dx = uv - \int v \frac{du}{dx}\, dx$$

Volumes of Revolution

$$\pi \int_a^b y^2\, dx$$

Differential Equations: split to have
f(y) dy = g(x) dx