Formulas for Final Exam - Math 230 - Dec. 12, 2006

You will get a copy of this sheet of paper to use during the final exam.

$$\sin^2\theta = \frac{1}{2}(1 - \cos 2\theta)$$

$$\cos^2\theta = \frac{1}{2}(1 + \cos 2\theta)$$

$$\text{arc length} \quad \int_a^b \sqrt{1 + \left(\frac{dy}{dx}\right)^2}\, dx$$

$$\text{surface area, revolving around x-axis} \quad \int_a^b 2\pi y \sqrt{1 + \left(\frac{dy}{dx}\right)^2}\, dx$$

$$\text{surface area, revolving around y-axis} \quad \int_a^b 2\pi x \sqrt{1 + \left(\frac{dy}{dx}\right)^2}\, dx$$

$$\text{volume, revolving around x-axis} \quad \int_a^b \pi y^2\, dx$$

$$\text{volume, revolving around y-axis} \quad \int_a^b 2\pi x y\, dx$$

$$\text{area in polar coordinates} \quad \int_\alpha^\beta \frac{1}{2} r^2\, d\theta$$