

Formulas that will be given on the final exam:

$$x^3 - y^3 = (x - y)(x^2 + xy + y^2)$$

$$x^3 + y^3 = (x + y)(x^2 - xy + y^2)$$

Sphere

$$V = \frac{4}{3}\pi r^3 \quad S = 4\pi r^2$$

Closed Right Circular Cylinder

$$V = \pi r^2 h \quad S = 2\pi r h + 2\pi r^2$$

Closed Right Circular Cone

$$V = \frac{1}{3}\pi r^2 h \quad S = \pi r \sqrt{r^2 + h^2} + \pi r^2$$

Interest Formulas

$$A = P \left(1 + \frac{r}{n}\right)^{nt} \quad A = Pe^{rt}$$

Pythagorean Identities

$$1 + \tan^2 \theta = \sec^2 \theta$$

$$1 + \cot^2 \theta = \csc^2 \theta$$

Half-Angle Identities

$$\sin\left(\frac{\theta}{2}\right) = \pm \sqrt{\frac{1 - \cos \theta}{2}}$$

$$\cos\left(\frac{\theta}{2}\right) = \pm \sqrt{\frac{1 + \cos \theta}{2}}$$

$$\tan\left(\frac{\theta}{2}\right) = \frac{1 - \cos \theta}{\sin \theta}$$

Double-Angle Identities

$$\sin 2\theta = 2 \sin \theta \cos \theta$$

$$\cos 2\theta = \cos^2 \theta - \sin^2 \theta$$

$$\tan 2\theta = \frac{2 \tan \theta}{1 - \tan^2 \theta}$$

Law of Cosines

$$a^2 = b^2 + c^2 - 2bc \cos \alpha$$