MA 159 FORMULA SHEET

FACTORIZATION

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

TRIGONOMETRY

$$\sec^2\theta = 1 + \tan^2\theta \qquad \csc^2\theta = 1 + \cot^2\theta$$

$$\sin 2\theta = 2\sin\theta\cos\theta \qquad \sin\frac{\theta}{2} = \pm\sqrt{\frac{1-\cos\theta}{2}}$$

$$\cos 2\theta = \cos^2\theta - \sin^2\theta \qquad \cos\frac{\theta}{2} = \pm\sqrt{\frac{1+\cos\theta}{2}}$$

$$\tan 2\theta = \frac{2\tan\theta}{1-\tan^2\theta} \qquad \tan\frac{\theta}{2} = \frac{\sin\theta}{1+\cos\theta}$$

INTEREST

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

SURFACE AREA AND VOLUME

Sphere:	$V = \frac{4}{3}\pi r^3$	$A = 4\pi r^2$
Closed right circular cylinder:	$V = \pi r^2 h$	$A = 2\pi r^2 + 2\pi r h$
Closed right circular cone:	$V = \frac{1}{3}\pi r^2 h$	$A = \pi r^2 + \pi r\sqrt{r^2 + h^2}$