MA 159 FORMULA SHEET

The formulas below will be provided on all appropriate quizzes and exams. All other formulas, conversions, and rules not listed below, but used in the homework and/or lectures, will need to be memorized.

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

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

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

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

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

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

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

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

ADD THESE FOR EXAM 3 AND THE FINAL EXAM

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

$A = Pe^{rt}$

EXAMS 1&2

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

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

Sphere

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

Closed Right Circular Cylinder

$V = \pi r^2 h \qquad S = 2\pi rh + 2\pi r^2$

Closed Right Circular Cone

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