MA 15900 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.

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

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

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

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

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

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

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

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

ADD THESE FOR EXAM 3 AND THE FINAL EXAM

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

$$A=Pe^{rt}$$

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

ADD Law of Cosines FOR THE FINAL EXAM

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

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

Closed Right Circular Cylinder

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

Closed Right Circular Cone

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