

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.

$$\left. \begin{aligned} 1 + \tan^2 \theta &= \sec^2 \theta \\ 1 + \cot^2 \theta &= \csc^2 \theta \end{aligned} \right\} \begin{array}{c} \text{ADD THESE} \\ \text{FOR EXAM 3} \end{array} \left\{ \begin{array}{l} A = P \left(1 + \frac{r}{n} \right)^{nt} \\ A = Pe^{rt} \end{array} \right.$$

$$\left. \begin{aligned} \sin\left(\frac{\theta}{2}\right) &= \pm \sqrt{\frac{1 - \cos\theta}{2}} \\ \cos\left(\frac{\theta}{2}\right) &= \pm \sqrt{\frac{1 + \cos\theta}{2}} \\ \tan\left(\frac{\theta}{2}\right) &= \frac{1 - \cos\theta}{\sin\theta} \end{aligned} \right\} \begin{array}{c} \text{ADD THESE} \\ \text{FOR THE} \\ \text{FINAL EXAM} \end{array} \left\{ \begin{array}{l} x^3 - y^3 = (x - y)(x^2 + xy + y^2) \\ x^3 + y^3 = (x + y)(x^2 - xy + y^2) \\ \text{Sphere} \\ V = \frac{4}{3} \pi r^3 \quad S = 4\pi r^2 \\ \text{Closed Right Circular Cylinder} \\ V = \pi r^2 h \quad S = 2\pi rh + 2\pi r^2 \\ \text{Closed Right Circular Cone} \\ V = \frac{1}{3} \pi r^2 h \quad S = \pi r \sqrt{r^2 + h^2} + \pi r^2 \end{array} \right.$$

$$\left. \begin{aligned} \sin 2\theta &= 2 \sin\theta \cos\theta \\ \cos 2\theta &= \cos^2 \theta - \sin^2 \theta \\ \tan 2\theta &= \frac{2 \tan\theta}{1 - \tan^2 \theta} \end{aligned} \right\} \begin{array}{c} \text{EXAMS 1\&2} \end{array}$$