

Formulas on Final Exam

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

$$A = Pe^{rt}$$

$$(\sin x)^2 + (\cos x)^2 = 1$$

$$(\tan x)^2 + 1 = (\sec x)^2$$

$$1 + (\cot x)^2 = (\csc x)^2$$

$$\sin(\alpha \pm \beta) = \sin \alpha \cos \beta \pm \sin \beta \cos \alpha$$

$$\tan(\alpha \pm \beta) = \frac{\tan(\alpha) \pm \tan(\beta)}{1 \mp \tan(\alpha)\tan(\beta)}$$

$$\cos(\alpha \pm \beta) = \cos \alpha \cos \beta \mp \sin \alpha \sin \beta$$

$$\sin(2x) = 2 \sin(x) \cos(x)$$

$$c^2 = a^2 + b^2 - 2ab \cos(C)$$

$$\cos(2x) = \begin{cases} \cos^2(x) - \sin^2(x) \\ 2\cos^2(x) - 1 \\ 1 - 2\sin^2(x) \end{cases}$$

$$\frac{\sin(A)}{a} = \frac{\sin(B)}{b} = \frac{\sin(C)}{c}$$

$$\tan(2x) = \frac{2 \tan(x)}{1 - \tan^2(x)}$$

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

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

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

$$\mathbf{A} \cdot \mathbf{B} = \|\mathbf{A}\| \|\mathbf{B}\| \cos(\theta)$$

