MACS 348 - Advanced Engineering Mathematics August 29, 2007
Missing Appendix - Kreyszig A61, Spring 2007

1. Angle Sum Formula
   (a) $\sin(x \pm y) = \sin(x)\cos(y) \pm \cos(x)\sin(y)$
   (b) $\cos(x \pm y) = \cos(x)\cos(y) \mp \sin(x)\sin(y)$
2. Rules derived from angle sum formulas
   (a) $\sin(x)\sin(y) = \frac{1}{2}\left[-\cos(x+y) + \cos(x-y)\right]$
   (b) $\cos(x)\cos(y) = \frac{1}{2}\left[\cos(x+y) + \cos(x-y)\right]$
   (c) $\sin(x)\cos(y) = \frac{1}{2}\left[\sin(x+y) + \sin(x-y)\right]$
3. Double Angle Formula
   (a) $\sin(2x) = 2\sin(x)\cos(x)$
   (b) $\cos(2x) = \cos^2(x) - \sin^2(x)$
4. Half Angle Formula
   (a) $\cos^2(x) = \frac{1}{2}\left(1 + \cos(2x)\right)$
   (b) $\sin^2(x) = \frac{1}{2}\left(1 - \cos(2x)\right)$
5. Other important tidbits
   (a) $\cos(n\pi) = (-1)^n$ when $n \in \mathbb{Z}$ (Read n is an integer).
   (b) $\sin(n\pi) = 0$ when $n \in \mathbb{Z}$.