Half Angles (C)

It was shown in the last section that

$$cos(2A) = 2cos^2(A) - 1$$

and

$$cos(2A) = 1 - 2sin^2(A).$$

If we let $A = \theta/2$ and solve for sine or cosine of θ we get the half angle identities:

$$cos^2(\theta/2\ ) = \frac{1 + cos(\theta)}{2}$$

and

$$sin^2(\theta/2\ ) = \frac{1 - cos(\theta)}{2}$$

If the quadrant of $\theta/2$ is known, and the cosine of θ is known, then the sine and cosine of $\theta/2$ can be computed.

Exercises:

1. Derive the half angle formulae.
2. Find the sine and cosine of π/8.
3. Find the sine and cosine of π/8.