

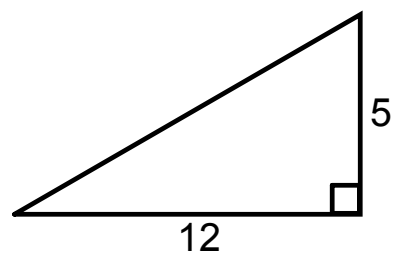
## Double Angle Identities

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

$$\begin{aligned}\cos 2\theta &= \cos^2 \theta - \sin^2 \theta \\ &= 1 - 2\sin^2 \theta \\ &= 2\cos^2 \theta - 1\end{aligned}$$

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

**Example 1:**



Find:

1)  $\sin 2\theta$

2)  $\cos 2\theta$

3)  $\tan 2\theta$

**Example 2:**

Given  $\sin x = -\frac{7}{25}$  when  $\pi < x < \frac{3\pi}{2}$

Find:

1)  $\sin 2\theta$

2)  $\cos 2\theta$

3)  $\tan 2\theta$