

Double Angle Identities

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

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

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

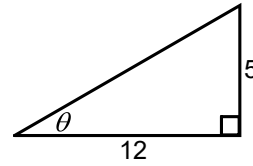
Example 1:

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) $\sin 2x$

2) $\cos 2x$

3) $\tan 2x$