

11-1 Double Angle Identities

Remember that
$$\begin{cases} \sin 2\theta = 2 \sin \theta \cdot \cos \theta \\ \cos 2\theta = \cos^2 \theta - \sin^2 \theta \\ \qquad \qquad = 2 \cos^2 \theta - 1 \\ \qquad \qquad = 1 - 2 \sin^2 \theta \end{cases}$$

1. Given that $\sin \theta = \frac{3}{5}$ and that θ is in the first quadrant, find $\cos 2\theta$.
2. Given that $\cos \theta = \frac{8}{9}$ and that θ is in the first quadrant, find $\cos 2\theta$.
3. Given that $\sin \theta = \frac{4}{5}$ and that θ is in the first quadrant, find $\sin 2\theta$.
4. Given that $\tan \theta = \frac{9}{40}$ and that θ is in the first quadrant, find $\sin 2\theta$.
5. Given that $\sin \theta = \frac{1}{2}$ and that θ is in the first quadrant, find $\cos 2\theta$.