

PRACTICE Quiz 4.3-4.4 Sum and Difference Identities**Simplify.**

1)
$$\frac{\tan -4\theta - \tan -3\theta}{1 + \tan -4\theta \tan -3\theta}$$

2)
$$\cos -3\theta \cos -6\theta - \sin -3\theta \sin -6\theta$$

3)
$$\sin v \cos -4v - \cos v \sin -4v$$

4)
$$\cos -2v \cos 4v + \sin -2v \sin 4v$$

Verify each identity.

5)
$$\sin \left(\frac{\pi}{2} + \theta \right) = \cos \theta$$

6)
$$\tan \left(\frac{3\pi}{4} - \theta \right) = \frac{-1 - \tan \theta}{1 - \tan \theta}$$

7)
$$\sin \left(\frac{3\pi}{2} + \theta \right) = -\cos \theta$$

8)
$$\cos (90^\circ - \theta) = \sin \theta$$

PRACTICE Quiz 4.3-4.4 Sum and Difference Identities

Simplify.

$$1) \frac{\tan -4\theta - \tan -3\theta}{1 + \tan -4\theta \tan -3\theta}$$

$\tan -\theta$

$$2) \cos -3\theta \cos -6\theta - \sin -3\theta \sin -6\theta$$

$\cos -9\theta$

$$3) \sin v \cos -4v - \cos v \sin -4v$$

$\sin 5v$

$$4) \cos -2v \cos 4v + \sin -2v \sin 4v$$

$\cos -6v$

Verify each identity.

$$5) \sin\left(\frac{\pi}{2} + \theta\right) = \cos \theta$$

$$\begin{aligned} & \sin\left(\frac{\pi}{2} + \theta\right) \\ &= \sin \frac{\pi}{2} \cos \theta + \cos \frac{\pi}{2} \sin \theta \\ &= \cos \theta + 0 \sin \theta \\ &= \cos \theta \end{aligned}$$

$$6) \tan\left(\frac{3\pi}{4} - \theta\right) = \frac{-1 - \tan \theta}{1 - \tan \theta}$$

$$\begin{aligned} & \tan\left(\frac{3\pi}{4} - \theta\right) \\ &= \frac{\tan \frac{3\pi}{4} - \tan \theta}{1 + \tan \frac{3\pi}{4} \tan \theta} \\ &= \frac{-1 - \tan \theta}{1 - \tan \theta} \\ &= \frac{-1 - \tan \theta}{1 - \tan \theta} \end{aligned}$$

$$7) \sin\left(\frac{3\pi}{2} + \theta\right) = -\cos \theta$$

$$\begin{aligned} & \sin\left(\frac{3\pi}{2} + \theta\right) \\ &= \sin \frac{3\pi}{2} \cos \theta + \cos \frac{3\pi}{2} \sin \theta \\ &= -\cos \theta + 0 \sin \theta \\ &= -\cos \theta \end{aligned}$$

$$8) \cos(90^\circ - \theta) = \sin \theta$$

$$\begin{aligned} & \cos(90^\circ - \theta) \\ &= \cos 90^\circ \cos \theta + \sin 90^\circ \sin \theta \\ &= 0 \cos \theta + \sin \theta \\ &= \sin \theta \end{aligned}$$