

Unit 4.4 Sum and Difference Identities (Tangent) PRACTICE

Simplify.

1)
$$\frac{\tan 6\theta - \tan -4\theta}{1 + \tan 6\theta \tan -4\theta}$$

2)
$$\frac{\tan 4\theta + \tan 6\theta}{1 - \tan 4\theta \tan 6\theta}$$

3)
$$\frac{\tan -5\theta - \tan 3\theta}{1 + \tan -5\theta \tan 3\theta}$$

4)
$$\frac{\tan -v - \tan 6v}{1 + \tan -v \tan 6v}$$

5)
$$\frac{\tan -5u - \tan -2u}{1 + \tan -5u \tan -2u}$$

6)
$$\frac{\tan u + \tan 4u}{1 - \tan u \tan 4u}$$

7)
$$\frac{\tan -3\theta - \tan -\theta}{1 + \tan -3\theta \tan -\theta}$$

8)
$$\frac{\tan -3x + \tan -x}{1 - \tan -3x \tan -x}$$

Verify each identity.

$$9) \tan(180^\circ - \theta) = -\tan \theta$$

$$10) \tan(\theta + 45^\circ) = \frac{\tan \theta + 1}{1 - \tan \theta}$$

$$11) \tan\left(\frac{\pi}{4} - \theta\right) = \frac{1 - \tan \theta}{1 + \tan \theta}$$

$$12) \tan(\theta - \pi) = \tan \theta$$

$$13) \tan(135^\circ + \theta) = \frac{-1 + \tan \theta}{1 + \tan \theta}$$

$$14) \tan\left(\theta - \frac{3\pi}{4}\right) = \frac{\tan \theta + 1}{1 - \tan \theta}$$

$$15) \tan\left(\frac{3\pi}{4} - \theta\right) = \frac{-1 - \tan \theta}{1 - \tan \theta}$$

$$16) \tan(\theta + 180^\circ) = \tan \theta$$