Pre-Calculus Day 33
Formative Ticket
Sum and Difference Identities

$$\cos(A+B) = \cos A \cos B - \sin A \sin B$$
$$\cos(A-B) = \cos A \cos B + \sin A \sin B$$
$$\sin(A+B) = \sin A \cos B + \cos A \sin B$$
$$\sin(A-B) = \sin A \cos B - \cos A \sin B$$
$$\tan(A+B) = \frac{\tan A + \tan B}{1 - \tan A \tan B}$$
$$\tan(A-B) = \frac{\tan A - \tan B}{1 + \tan A \tan B}$$

Sum and Difference Identities

PRACTICE

Directions: Tell whether each statement is true or false.

1) $\sin 75 = \sin 50 \cos 25 - \cos 25 \sin 25$

2) $\cos 15 = \cos 60 \cos 45 + \sin 60 \sin 45$

3) $\tan 225 = \dfrac{\tan 180 - \tan 45}{1 + \tan 180 \tan 45}$

Directions: Write the expression as the sine, cosine or tangent of an angle.

4) $\sin 42 \cos 17 - \cos 42 \sin 17$

5) $\dfrac{\tan 19 + \tan 47}{1 - \tan 19 \tan 47}$

6) $\cos\frac{\pi}{3}\cos\frac{\pi}{4} + \sin\frac{\pi}{3}\sin\frac{\pi}{4}$

Directions: Use the sum or difference identity to find the exact value.

7) $\tan 195°$

8) $\cos 255°$

9) $\sin 165°$

10) $\cos\frac{13\pi}{12}$