

## Pre-Calculus

### Formative Ticket # 18

#### Applying the Double Angle Identity

### DOUBLE-ANGLE IDENTITIES

SINE	COSINE	TANGENT
$\sin (2A) = 2 \sin A \cos A$	$\cos (2A) = \cos^2 A - \sin^2 A$	$\tan (2A) = \frac{2 \tan A}{1 - \tan^2 A}$
	$\cos (2A) = 1 - 2 \sin^2 A$	
	$\cos (2A) = 2 \cos^2 A - 1$	

**Example 1 (Finding Function Values of  $2\theta$  Given Information About  $\theta$ ):** Given that  $\sin \theta = \frac{8}{17}$  and  $\cos \theta < 0$ , find the values of  $\sin 2\theta$ ,  $\cos 2\theta$ , and  $\tan 2\theta$ .

**Example 2 (Practice):** Find the values of  $\sin 2\theta$ ,  $\cos 2\theta$ , and  $\tan 2\theta$  given that  $\cos 2\theta = -\frac{12}{13}$  and that  $180^\circ < \theta < 270^\circ$ .