

9-5 Review  
10-1 Test  
10-2

## Double Angle Identities

### Double Angle Identities

$$\sin 2\theta = 2 \sin \theta \cos \theta$$

$$\begin{aligned}\cos 2\theta &= \cos^2 \theta - \sin^2 \theta \\ &= 2 \cos^2 \theta - 1 \\ &= 1 - 2 \sin^2 \theta\end{aligned}$$

$$\tan 2\theta = \frac{2 \tan \theta}{1 - \tan^2 \theta}$$

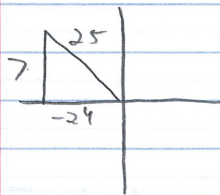
### Reciprocals still work!

$$\csc 2\theta = \frac{1}{\sin 2\theta}$$

$$\sec 2\theta = \frac{1}{\cos 2\theta}$$

$$\cot 2\theta = \frac{1}{\tan 2\theta}$$

Find the exact value of  $\cos 2\theta$  if  $\sin \theta = \frac{7}{25}$  and  $\frac{\pi}{2} < \theta < \pi$



$$\begin{aligned}\cos 2\theta &= \cos^2 \theta - \sin^2 \theta & \text{or} &= 2 \cos^2 \theta - 1 \\ &= \left(\frac{-24}{25}\right)^2 - \left(\frac{7}{25}\right)^2 & &= 2 \left(\frac{-24}{25}\right)^2 - 1 \\ &= \frac{576}{625} - \frac{49}{625} & &= 2 \left(\frac{576}{625}\right) - 1 \\ &= \frac{527}{625} & &= \frac{1152}{625} - \frac{625}{625} \\ & & &= \frac{527}{625} \text{ etc.}\end{aligned}$$

CW/HW - Double Angle wkst