

**Math 112: #7 A/B**

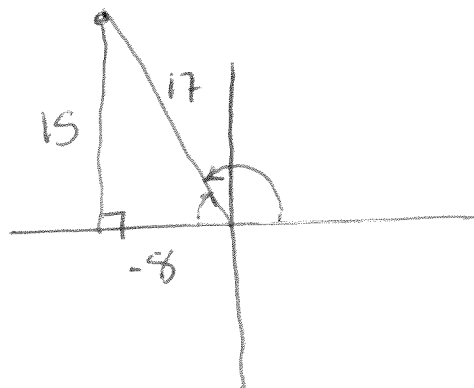
1. Let  $\theta$  denote the positive angle (measured counterclockwise) between the positive  $x$ -axis and the ray from the origin through the point  $(-8, 15)$ . Determine the values of  $\sin \theta$ ,  $\cos \theta$ ,  $\tan \theta$ ,  $\csc \theta$ ,  $\sec \theta$ , and  $\cot \theta$ .

↑  
 $\cot \theta$

$$\sin \theta = \frac{15}{17} \quad \csc \theta = \frac{17}{15}$$

$$\cos \theta = -\frac{8}{17} \quad \sec \theta = -\frac{17}{8}$$

$$\tan \theta = \frac{15}{-8} \quad \cot \theta = -\frac{8}{15}$$



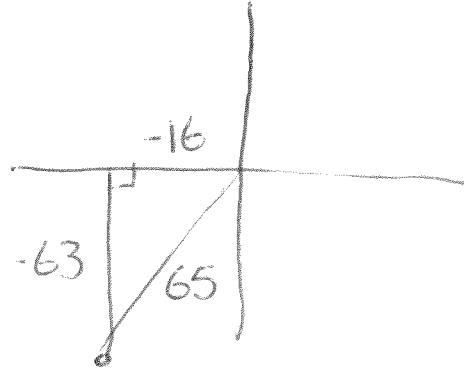
$$(-8)^2 + 15^2 = 289$$

$$\sqrt{289} = 17$$

2. Let  $\theta$  denote the positive angle (measured counterclockwise) between the positive  $x$ -axis and the ray from the origin through the point  $(-16, -63)$ . Determine the values of  $\sin \theta$ ,  $\cos \theta$ ,  $\tan \theta$ ,  $\csc \theta$ ,  $\sec \theta$ , and  $\cot \theta$ .

$\cot \theta$

$$\sin \theta = \frac{-63}{65} \quad \csc \theta = -\frac{65}{63}$$



$$\cos \theta = \frac{-16}{65} \quad \sec \theta = -\frac{65}{16}$$

$$\tan \theta = \frac{-63}{-16} \quad \cot \theta = \frac{16}{63}$$

$$(-16)^2 + (-63)^2 = 4225$$

$$\sqrt{4225} = 65$$