

**F.TF.C.8: Determining Trigonometric Functions 2**

- 1 If  $x$  is a positive acute angle and  $\cos x = \frac{3}{5}$ , find the value of  $\sin x$ .
- 2 If the sine of an angle is  $\frac{3}{5}$  and the angle is *not* in Quadrant I, what is the value of the cosine of the angle?
- 3 If  $\sin \theta = -\frac{4}{5}$  and  $\theta$  is in Quadrant IV, find  $\tan \theta$ .
- 4 If  $\theta$  terminates in Quadrant II and  $\sin \theta = \frac{12}{13}$ , find  $\cos \theta$ .
- 5 If  $\tan A = \frac{-5}{12}$  and  $\cos A > 0$ , find  $\sin A$ .
- 6 Given  $\tan \theta = -\frac{5}{12}$  and  $\frac{\pi}{2} < \theta < \pi$ , determine the *exact* value of the expression  $\sin \theta \cot \theta$ .
- 7 If  $\sin \theta = -\frac{8}{17}$  and  $\tan \theta$  is positive, what is the value of  $\cos \theta$ ?
- 8 Given  $\tan \theta = \frac{7}{24}$ , and  $\theta$  terminates in Quadrant III, determine the value of  $\cos \theta$ .
- 9 Using the identity  $\sin^2 \theta + \cos^2 \theta = 1$ , find the value of  $\tan \theta$ , to the *nearest hundredth*, if  $\cos \theta$  is  $-0.7$  and  $\theta$  is in Quadrant II.
- 10 Given  $\cos A = \frac{3}{\sqrt{10}}$  and  $\cot A = -3$ , determine the value of  $\sin A$  in radical form.

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### Answer Section

1 ANS:

$$\frac{4}{5}$$

REF: 019003siii

2 ANS:

$$\cos^2 \theta + \sin^2 \theta = 1$$

$$\cos^2 \theta + \left(\frac{3}{5}\right)^2 = 1$$

$$-\frac{4}{5} \cdot \cos^2 \theta + \frac{9}{25} = 1 \quad . \quad \text{Since the angle is not in Quadrant I, } \cos \theta = -\frac{4}{5}.$$

$$\cos^2 \theta = \frac{16}{25}$$

$$\cos \theta = \pm \frac{4}{5}$$

REF: 080121b

3 ANS:

$$-\frac{4}{3}$$

REF: 089007siii

4 ANS:

$$-\frac{5}{13}$$

REF: 019611siii

5 ANS:

$$-\frac{5}{13}$$

REF: 068013siii

6 ANS:

$$\sin \theta \cot \theta = \left(-\frac{12}{5}\right) \left(\frac{5}{13}\right) = -\frac{60}{65}$$

REF: 061635a2

7 ANS:

$$-\frac{15}{17}$$

REF: 089712siii

8 ANS:

$$\tan \theta = \frac{\sin \theta}{\cos \theta} = \frac{-7/25}{-24/25} \quad \cos \theta = \frac{-24}{25}$$

REF: 061928aai

9 ANS:

$$\sin^2 \theta + (-0.7)^2 = 1 \quad \text{Since } \theta \text{ is in Quadrant II, } \sin \theta = \sqrt{.51} \text{ and } \tan \theta = \frac{\sin \theta}{\cos \theta} = \frac{\sqrt{.51}}{-0.7} \approx -1.02$$

$$\sin^2 \theta = .51$$

$$\sin \theta = \pm \sqrt{.51}$$

REF: 081628aai

10 ANS:

$$\cos A = \frac{\cos A}{\sin A}$$

$$-3 = \frac{3}{\sin A}$$

$$\sin A = \frac{3}{-3\sqrt{10}} = -\frac{1}{\sqrt{10}}$$

REF: 082229aai