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

1. If $\cos x = -\frac{4}{5}$ and $\tan x > 0$, the value of $\sin x$ is?

   1) $\frac{3}{5}$ 2) $\frac{5}{3}$ 3) $-\frac{5}{3}$ 4) $-\frac{3}{5}$

2. If $\sin\theta = \frac{\sqrt{7}}{4}$ and $\cos\theta = -\frac{3}{4}$, what is $\tan\theta$?

   1) $\frac{4}{3}$ 2) $-\frac{\sqrt{7}}{4}$ 3) $\frac{\sqrt{7}}{3}$ 4) $-\frac{\sqrt{7}}{3}$

3. If $\sin\theta = -\frac{3}{5}$ and $\cos\theta > 0$, what is the value of $\tan\theta$?

   1) $\frac{3}{4}$ 2) $-\frac{3}{4}$ 3) $\frac{4}{3}$ 4) $-\frac{4}{3}$

4. If $\cos\theta = -\frac{4}{5}$ and θ lies in Quadrant II, what is the value of $\tan\theta$?

   1) $\frac{3}{4}$ 2) $\frac{4}{3}$ 3) $-\frac{3}{4}$ 4) $-\frac{4}{3}$

5. If $\cos A = \frac{4}{5}$ and A is in Quadrant I, what is the value of $\sin A \cdot \tan A$?

   1) $\frac{9}{20}$ 2) $\frac{12}{25}$ 3) $\frac{16}{25}$ 4) $\frac{16}{20}$

6. If $\cos\theta = -\frac{5}{13}$ and $\sin\theta > 0$, then $\tan\theta$ is

   1) $\frac{5}{12}$ 2) $-\frac{5}{12}$ 3) $\frac{12}{5}$ 4) $-\frac{12}{5}$

7. If $\sin A = -\frac{7}{25}$ and $\angle A$ terminates in Quadrant IV, $\tan A$ equals

   1) $-\frac{7}{25}$ 2) $-\frac{7}{24}$ 3) $-\frac{24}{7}$ 4) $-\frac{24}{25}$

8. If x is a positive acute angle and $\cos x = \frac{\sqrt{3}}{4}$, what is the exact value of $\sin x$?

   1) $\frac{\sqrt{3}}{5}$ 2) $\frac{\sqrt{13}}{4}$ 3) $\frac{3}{5}$ 4) $\frac{4}{5}$

9   If $\tan x = -\dfrac{2}{3}$ and angle x lies in the second quadrant, what is the value of $\cos x$?

1) $\dfrac{3\sqrt{5}}{5}$ 2) $-\dfrac{3\sqrt{5}}{5}$ 3) $\dfrac{3\sqrt{13}}{13}$ 4) $-\dfrac{3\sqrt{13}}{13}$

10 If $\cos\theta = -\dfrac{3}{4}$ and $\tan\theta$ is negative, the value of $\sin\theta$ is

1) $\dfrac{4}{5}$ 2) $-\dfrac{\sqrt{7}}{4}$ 3) $\dfrac{7}{4}$ 4) $\dfrac{\sqrt{7}}{4}$

11 If $\sin\theta = \dfrac{1}{2}$ and θ terminates in Quadrant II, what is the value of $\csc\theta \bullet \cot\theta$?

1) $-2\sqrt{3}$ 2) $\dfrac{\sqrt{3}}{2}$ 3) -2 4) $\dfrac{2\sqrt{3}}{3}$

12 If x is a positive acute angle and $\cos x = \dfrac{3}{5}$, find the value of $\sin x$.

13 If the sine of an angle is $\dfrac{3}{5}$ and the angle is *not* in Quadrant I, what is the value of the cosine of the angle?

14 If $\sin\theta = -\dfrac{4}{5}$ and θ is in Quadrant IV, find $\tan\theta$.

15 If θ terminates in Quadrant II and $\sin\theta = \dfrac{12}{13}$, find $\cos\theta$.

16 If $\tan A = \dfrac{-5}{12}$ and $\cos A > 0$, find $\sin A$.

17 Given $\tan\theta = -\dfrac{5}{12}$ and $\dfrac{\pi}{2} < \theta < \pi$, determine the *exact* value of the expression $\sin\theta \cot\theta$.

18 If $\sin\theta = -\dfrac{8}{17}$ and $\tan\theta$ is positive, what is the value of $\cos\theta$?

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Answer Section

1 ANS: 4   REF: 018628siii
2 ANS: 4   REF: 010321siii
3 ANS: 2   REF: 010021siii
4 ANS: 3

If $\cos\theta = -\dfrac{4}{5}$ and θ lies in Quadrant II, then $\sin\theta = \dfrac{3}{5}$. $\tan\theta = \dfrac{\sin\theta}{\cos\theta} = \dfrac{\dfrac{3}{5}}{-\dfrac{4}{5}} = -\dfrac{3}{4}$

REF: 061004b
5 ANS: 1   REF: 069421siii
6 ANS: 4   REF: 068417siii
7 ANS: 2

If $\sin A = -\dfrac{7}{25}$, $\cos A = \dfrac{24}{25}$, and $\tan A = \dfrac{\sin A}{\cos A} = \dfrac{-\dfrac{7}{25}}{\dfrac{24}{25}} = -\dfrac{7}{24}$

REF: 011413a2
8 ANS: 2

$$\cos^2\theta + \sin^2\theta = 1$$
$$(\tfrac{\sqrt{3}}{4})^2 + \sin^2\theta = 1$$
$$\tfrac{3}{16} + \sin^2\theta = 1$$
$$\sin^2\theta = \tfrac{13}{16}$$
$$\sin\theta = \tfrac{\sqrt{13}}{4}$$

REF: 080604b
9 ANS: 4   REF: 068632siii
10 ANS: 4   REF: 019431siii
11 ANS: 1

If $\sin\theta = \dfrac{1}{2}$ and θ terminates in Quadrant II, $\cos\theta = -\dfrac{\sqrt{3}}{2}$. $\csc\theta \bullet \cot\theta = \dfrac{1}{\sin\theta} \bullet \dfrac{\cos\theta}{\sin\theta} = \dfrac{-\dfrac{\sqrt{3}}{2}}{\left(\dfrac{1}{2}\right)^2} = -2\sqrt{3}$

REF: 011721a2

12 ANS:

$\dfrac{4}{5}$

REF: 019003siii

13 ANS:

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

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

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

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

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

REF: 080121b

14 ANS:

$-\dfrac{4}{3}$

REF: 089007siii

15 ANS:

$-\dfrac{5}{13}$

REF: 019611siii

16 ANS:

$-\dfrac{5}{13}$

REF: 068013siii

17 ANS:

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

REF: 061635a2

18 ANS:

$-\dfrac{15}{17}$

REF: 089712siii

2