

F.TF.C.8: Determining Trigonometric Functions 1

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 $\cos \theta = -\frac{4}{5}$ 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) $-\frac{4}{3}$

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 Given $\tan \theta = -\frac{4}{3}$ where $\frac{\pi}{2} < \theta < \pi$, what is the value of $\sec \theta$?

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

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 Given $\cos \theta = \frac{7}{25}$, where θ is an angle in standard position terminating in quadrant IV, and $\sin^2 \theta + \cos^2 \theta = 1$, what is the value of $\tan \theta$?

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

8 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) $-\frac{24}{25}$

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

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

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

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

11 If $\cos \theta = -\frac{3}{4}$ and θ is in Quadrant III, then $\sin \theta$ is equivalent to

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

12 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) $-\frac{\sqrt{7}}{3}$

13 If $\cos A = \frac{\sqrt{5}}{3}$ and $\tan A < 0$, what is the value of $\sin A$?

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

14 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) $\frac{4}{5}$

15 Given that $\sin^2 \theta + \cos^2 \theta = 1$ and $\sin \theta = -\frac{\sqrt{2}}{5}$, what is a possible value of $\cos \theta$?

- 1) $\frac{5+\sqrt{2}}{5}$ 2) $\frac{\sqrt{23}}{5}$ 3) $\frac{3\sqrt{3}}{5}$ 4) $\frac{\sqrt{35}}{5}$

16 What is the value of $\tan \theta$ when $\sin \theta = \frac{2}{5}$ and θ is in quadrant II?

- 1) $\frac{-\sqrt{21}}{5}$ 2) $\frac{-\sqrt{21}}{2}$ 3) $\frac{-2}{\sqrt{21}}$ 4) $\frac{2}{\sqrt{21}}$

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

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

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Answer Section

- 1 ANS: 4 REF: 018628siii
 2 ANS: 3

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

REF: 061004b

- 3 ANS: 2 REF: 010021siii
 4 ANS: 1

$$\cos \theta = -\frac{3}{5}; \quad \sec \theta = -\frac{5}{3}$$

REF: 012421aii

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

$$\text{If } \cos \theta = \frac{7}{25}, \sin \theta = \pm \frac{24}{25}, \text{ and } \tan \theta = \frac{\sin \theta}{\cos \theta} = \frac{\pm \frac{24}{25}}{\frac{7}{25}} = \pm \frac{24}{7}$$

REF: 081811aii

- 8 ANS: 2

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

REF: 011413a2

- 9 ANS: 1

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

REF: 011721a2

- 10 ANS: 4 REF: 019431siii

11 ANS: 1

$$-\sqrt{1 - \left(-\frac{3}{4}\right)^2} = -\sqrt{\frac{16}{16} - \frac{9}{16}} = -\sqrt{\frac{7}{16}} = -\frac{\sqrt{7}}{4}$$

REF: 081905aii

12 ANS: 4

REF: 010321siii

13 ANS: 3

$$\sin^2 A + \left(\frac{\sqrt{5}}{3}\right)^2 = 1 \quad \text{Since } \tan A < 0, \sin A = -\frac{2}{3}$$

$$\sin^2 A + \frac{5}{9} = \frac{9}{9}$$

$$\sin^2 A = \frac{4}{9}$$

$$\sin A = \pm \frac{2}{3}$$

REF: 012320aii

14 ANS: 2

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

$$\left(\frac{\sqrt{3}}{4}\right)^2 + \sin^2 \theta = 1$$

$$\frac{3}{16} + \sin^2 \theta = 1$$

$$\sin^2 \theta = \frac{13}{16}$$

$$\sin \theta = \frac{\sqrt{13}}{4}$$

REF: 080604b

15 ANS: 2

$$\cos \theta = \pm \sqrt{1 - \left(\frac{-\sqrt{2}}{5}\right)^2} = \pm \sqrt{\frac{25}{25} - \frac{2}{25}} = \pm \frac{\sqrt{23}}{5}$$

REF: 061712aii

16 ANS: 3

$$\frac{-2}{\sqrt{5^2 - 2^2}} = \frac{-2}{\sqrt{21}}$$

REF: 082312aii

17 ANS: 4

REF: 068632siii