Name: _____

F.TF.A.2: Determining Trigonometric Functions 4

1 If θ is an angle in standard position and $P(-3,4)$ is a point on the terminal side of θ, what is the value of $\sin\theta$?

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

2 If the terminal side of angle θ, in standard position, passes through point $(-4,3)$, what is the numerical value of $\sin\theta$?

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

3 If the terminal side of angle θ passes through point $(-4,3)$, what is the value of $\cos\theta$?

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

4 A circle centered at the origin has a radius of 10 units. The terminal side of an angle, θ, intercepts the circle in Quadrant II at point C. The y-coordinate of point C is 8. What is the value of $\cos\theta$?

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

5 Circle O has a radius of 2 units. An angle with a measure of $\frac{\pi}{6}$ radians is in standard position. If the terminal side of the angle intersects the circle at point B, what are the coordinates of B?

1) $\left(\frac{\sqrt{3}}{2},\frac{1}{2}\right)$
2) $\left(\sqrt{3},1\right)$
3) $\left(\frac{1}{2},\frac{\sqrt{3}}{2}\right)$
4) $\left(1,\sqrt{3}\right)$

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6 If θ is an angle in standard position whose terminal side passes through the point $(-2,-3)$, what is the numerical value of $\tan\theta$?

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

7 Angle θ is in standard position and $(-4,0)$ is a point on the terminal side of θ. What is the value of $\sec\theta$?

1) -4
2) -1
3) 0
4) undefined

8 If the terminal side of angle θ passes through point $(-3,-4)$, what is the value of $\sec\theta$?

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

9 If θ is an angle in standard position whose terminal side passes through the point $(-3,-4)$, which statement is true?

1) $\sec\theta > 0$ and $\tan\theta > 0$
2) $\sec\theta < 0$ and $\tan\theta < 0$
3) $\sec\theta > 0$ and $\tan\theta < 0$
4) $\sec\theta < 0$ and $\tan\theta > 0$

10 The origin of a coordinate grid is labeled *A*. Line segment *AB* forms an angle of 30° with the *x*-axis. If $AB = 8$, the coordinates of *B* are:

1) $(6,4)$
2) $(8\cos 30°, 8\sin 30°)$
3) $(8\sin 30°, 8\cos 30°)$
4) $(4, 4\sqrt{3})$

11 An angle, θ, is in standard position and its terminal side passes through the point $(2,-1)$. Find the *exact* value of $\sin\theta$.

12 If θ is an angle in standard position and its terminal side passes through the point $(-3,2)$, find the exact value of $\csc\theta$.

13 Determine the exact value of $\csc P$ if P is an angle in standard position and its terminal side passes through the point $(5,-8)$.

F.TF.A.2: Determining Trigonometric Functions 4
Answer Section

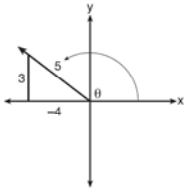
1 ANS: 3

$$\sin\theta = \frac{y}{\sqrt{x^2+y^2}} = \frac{4}{\sqrt{(-3)^2+4^2}} = \frac{4}{5}$$

REF: 010616b

2 ANS: 1

A reference triangle can be sketched using the coordinates $(-4,3)$ in the second quadrant to find the value of $\sin\theta$.



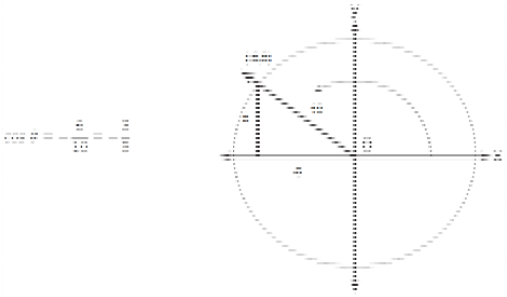
REF: spr1503aii

3 ANS: 4

$$\cos\theta = \frac{x}{\sqrt{x^2+y^2}} = \frac{-4}{\sqrt{(-4)^2+3^2}} = -\frac{4}{5}$$

REF: 068628siii

4 ANS: 1



REF: 061617aii

5 ANS: 2

$$x = 2\cdot\frac{\sqrt{3}}{2} = \sqrt{3} \quad y = 2\cdot\frac{1}{2} = 1$$

REF: 061525a2

6 ANS: 2

$$\sqrt{(-2)^2+(-3)^2} = \sqrt{13};\ \tan\theta = \frac{\sin\theta}{\cos\theta} = \frac{\frac{-3}{\sqrt{13}}}{\frac{-2}{\sqrt{13}}} = \frac{3}{2}$$

REF: 062304aii

7 ANS: 2

$\sec\theta = \dfrac{\sqrt{x^2+y^2}}{x} = \dfrac{\sqrt{(-4)^2+0^2}}{-4} = \dfrac{4}{-4} = -1$

REF: 011520a2

8 ANS: 2

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

REF: 011621a2

9 ANS: 4

Since the terminal side of θ passes through $(-3,-4)$, $\cos\theta < 0$ and $\sin\theta < 0$. $\cos\theta < 0 \rightarrow \sec\theta < 0$

$\tan\theta = \dfrac{\sin\theta}{\cos\theta} \rightarrow \dfrac{-}{-} = +$

REF: 082420aii

10 ANS: 2 REF: fall9920b

11 ANS:

$\dfrac{-1}{\sqrt{2^2+(-1)^2}} = -\dfrac{1}{\sqrt{5}}$

REF: 061832aii

12 ANS:

$\dfrac{\sqrt{13}}{2}$. $\sin\theta = \dfrac{y}{\sqrt{x^2+y^2}} = \dfrac{2}{\sqrt{(-3)^2+2^2}} = \dfrac{2}{\sqrt{13}}$. $\csc\theta = \dfrac{\sqrt{13}}{2}$.

REF: fall0933a2

13 ANS:

$\sin P = \dfrac{y}{\sqrt{x^2+y^2}} = \dfrac{-8}{\sqrt{5^2+(-8)^2}} = \dfrac{-8}{\sqrt{89}} \quad \csc P = -\dfrac{\sqrt{89}}{8}$

REF: 081634a2