This exam covers Sections 6.1, 6.2, 6.3, 6.4 and 6.5

1. Which angle is complementary to 28°15'52"?

A. 151°44'7"

B. 61°44'7"

C. 162°45'8"

D. 151°44'8"

E. 61°44'8"

2. On a circle, an arc of length 11.52 cm subtends the central angle 132°. What is the area of the sector?

A. 33.0 cm^2

B. 28.8 cm^2

C. 46.4 cm^2

D. 57.6 cm^2

E. 66.0 cm^2

3. Approximate the value of csc 28°.

A. 0.0006

B 2.1301

C. 1.8807

D. 1.0000

E. 1.1326

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4. Bill is standing on level ground 300 feet from the base of a flagpole. From where he is standing, the angle between the ground and the top of the flagpole is 37°. Find the height of the flagpole.

A. 239.6 feet

B. 180.5 feet

C. 398.1 feet

D. 226.1 feet

E. 498.5 feet

5. $(\tan\theta + \sin\theta)(\cot\theta - \csc\theta)$ is equivalent to which of the following?

A. $\cot\theta - \tan\theta$

B. $\sin\theta - \csc\theta$

C. $\cos\theta + \sin\theta$

D. $\tan\theta - \cot\theta$

E. $\cos\theta - \sec\theta$

6. Which quadrant contains θ, if $\cos\theta < 0$ and $\tan\theta > 0$?

A. Quadrant I

B. Quadrant II

C. Quadrant III

D. Quadrant IV

E. θ does not exist.

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7. Find the exact value of $\cos\theta$ if θ is in standard position and $P(-4,7)$ is a point on the terminal side of θ.

A. $-\frac{4}{\sqrt{33}}$

B. $\frac{7}{\sqrt{33}}$

C. $\frac{7}{\sqrt{65}}$

D. $-\frac{4}{\sqrt{65}}$

E. $\frac{7}{4}$

8. $\frac{\sec(-x)}{\csc(-x)}$ is equivalent to which of the following?

A. $-\tan(x)$

B. $-\cot(x)$

C. $\frac{1}{\sin(x)\cos(x)}$

D. $\tan(x)$

E. $\sin(x)\cos(x)$

9. As $x \to \frac{\pi}{2}^-$, $\tan x \to$ _____.

A. undefined

B. 0

C. ∞

D. $\frac{\pi}{4}$

E. $-\infty$

10. Which of the following is/are true about the graph of $y = \sin(x) - 3$?

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I. Has a range of $[-4, -2]$

II. Crosses the y-axis at $(0, -2)$

III. The period of the graph is $\frac{2\pi}{3}$

A. Only I is true.

B. Only II is true.

C. Only III is true.

D. Only I and III are true.

E. Only II and III are true.

11. Find the reference angle, θ_r, of 35.6.

A. 0.67

B. 1.04

C. 0.53

D. 1.26

E. 0.75

12. Approximate all angles θ in the interval $[0, 2\pi)$ that satisfy the equation $\sec\theta = -5.7171$.

A. 1.7466, 2.9658

B. 2.9658, 3.3174

C. 1.3950, 4.8882

D. 1.7466, 4.5366

E. 0.1758, 2.9658

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13. What is the phase shift of the graph of $y = 2\cos\left(\frac{1}{3}x - \frac{\pi}{4}\right)$?

A. $\frac{3\pi}{4}$

B. $\frac{2}{3}$

C. $\frac{\pi}{12}$

D. $-\frac{\pi}{12}$

E. $-\frac{3}{2}$

14. What is the equation, in the form $y = a\sin(bx + c)$ for the function with amplitude = 4, period = 5, and phase shift = –2?

A. $y = 4\sin\left(\frac{2\pi}{3}x + \frac{5}{\pi}\right)$

B. $y = 4\sin\left(\frac{3\pi}{4}x + \frac{\pi}{4}\right)$

C. $y = 4\sin(5x + 2)$

D. $y = 4\sin(10\pi x + 20)$

E. $y = 4\sin\left(\frac{2\pi}{5}x + \frac{4\pi}{5}\right)$

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Exam 1 Answers

Question		
1	61°44'8"	E
2	28.8 cm^2	B
3	2.1301	B
4	226.1 feet	D
5	$\cos\theta - \sec\theta$	E
6	Quadrant III	C
7	$-\frac{4}{\sqrt{65}}$	D
8	$-\tan(x)$	A
9	∞	C
10	Only I is true.	A
11	1.04	B
12	1.7466, 4.5366	D
13	$\frac{3\pi}{4}$	A
14	$y = 4\sin\left(\frac{2\pi}{5}x + \frac{4\pi}{5}\right)$	E