MA 15400 Exam 1 Spring 2009

Covers Lessons 1-9, Sections 6.1 through all of 6.4

1. Find the angle that is **supplementary** to 17° 8' 12"

   A. 72° 51' 48"

   B. 71° 31' 40"

   C. 162° 51' 48"

   D. 161° 38' 40"

   E. None of the above.

2. Approximate the radian measure of 736° to four decimals.

   A. 6.4228

   B. 12.8456

   C. 25.6912

   D. 42169.6937

   E. None of the above.

3. Find the area of the sector of a circle whose 21° central angle subtends an arc length of 14 cm. Approximate your answer to one decimal.

   A. 66.8 cm^2

   B. 129.5 cm^2

   C. 54.2 cm^2

   D. 267.4 cm^2

   E. None of the above.

4. Find the arc length subtended by a $3'$ central angle on a circle of radius 10,000 miles. Round your answer to the nearest tenth of a mile.

A. 8.7 miles

B. 4.4 miles

C. 17.5 miles

D. 28.3 miles

E. None of the above.

5. $sec\theta - cos\theta$ is equivalent to which of the following?

A. $\cot\theta\cos\theta$

B. $\tan\theta + \sin\theta$

C. $\csc\theta\cos\theta$

D. $\cot\theta - \sin\theta$

E. $\sin\theta\tan\theta$

6. Approximate $\sec(43.1°)$ to four decimal places.

A. 1.3696

B. 1.0000

C. 1.4635

D. 0.0004

E. None of the above.

7. The largest Coast Redwood tree on record is located in California. It scores 1290 points on the National Register of Big Trees points system with takes into account its circumference, height, and spread. From a point, on level ground, 396 feet from the center of the base of the tree, the angle between the ground and the top of the tree is $39°$. Approximate the height of the tree to the nearest foot.

A. 489 feet

B. 234 feet

C. 563 feet

D. 321 feet

E. None of the above.

8. Find the exact value of $csc\theta$ if θ is in standard position and the terminal side of θ is in quadrant *III* and is parallel to the line $12x - 5y = 12$.

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

B. $\frac{5}{12}$

C. $\frac{-12}{13}$

D. $\frac{12}{5}$

E. None of the above.

9. Let $P(t) = \left(\frac{-7}{25}, \frac{24}{25}\right)$ be the point on the unit circle that corresponds to *t*.

Find $P(-t + \pi)$.

A. $\left(\frac{-7}{25}, \frac{24}{25}\right)$

B. $\left(\frac{7}{25}, \frac{-24}{25}\right)$

C. $\left(\frac{-7}{25}, \frac{-24}{25}\right)$

D. $\left(\frac{7}{25}, \frac{24}{25}\right)$

E. None of the above.

10. $\frac{sin(-x)}{cos(-x)}$ is equivalent to which of the following?

A. $-tan(x)$

B. $cot(x)$

C. $tan(x)$

D. $sin(x)cos(x)$

E. $-cot(x)$

11. Complete the statement. As $x \to \frac{3\pi^+}{2}, \tan(x) \to$ _____ .

A. 1

B. ∞

C. $-\infty$

D. undefined

E. None of the above.

12. Which of the following statements is/are true about the graph of the equation $y = 3 + \cos x$?

I.	The graph crosses the y-axis at 4.
II.	The graph crosses the x-axis at π .
III.	$\left(\frac{\pi}{2}, 3\right)$ is a point on the curve.

A. Only I and II are true.

B. Only I and III are true.

C. Only II and III are true.

D. All three are true.

E. None are true.

13. Find the reference angle for θ = 222 radians to the nearest hundredth of a **radian**.

A. 2.09

B. 1.05

C. 1.57

D. 0.52

E. None of the above.

14. Find the exact value of $\sec\left(\frac{5\pi}{6}\right)$.

A. $\frac{-2}{\sqrt{3}}$

B. -2

C. $\frac{2}{\sqrt{3}}$

D. 2

E. None of the above.

15. Approximate, to the nearest 0.01 **radians**, all angles θ in the interval $[0, 2\pi)$ that satisfy the equation $\tan(\theta) = -3.5678$.

A. $1.30, 4.44$

B. $4.44, 4.99$

C. $1.30, 1.84$

D. $1.84, 4.99$

E. None of the above.

Question	Answer	Letter
1.	162° 51' 48"	C
2.	12.8456	B
3.	267.4 cm^2	D
4.	8.7 miles	A
5.	$\sin\theta \tan\theta$	E
6.	1.3696	A
7.	321 feet	D
8.	$\frac{-13}{12}$	E None of the above
9.	$\left(\frac{7}{25}, \frac{24}{25}\right)$	D
10.	$-tan(x)$	A
11.	$-\infty$	C
12.	Only I and III are true.	B
13.	1.05	B
14.	$\frac{-2}{\sqrt{3}}$	A
15.	1.84, 4.99	D