MA 15400 Exam 1 Fall 2009

Covers Lesson 1-11, Sections 6.1, 6.2. 6.3, 6.4 and all of 6.5

1. Find the supplementary angle to $78°5'13"$.

   A. $101°08'30"$

   B. $11°55'47"$

   C. $101°55'46"$

   D. $11°08'30"$

   E. None of the above

2. Find the quadrant containing ω if $\sec\omega > 0$ and $\tan\omega < 0$.

   A. QI

   B. QII

   C. $QIII$

   D. QIV

   E. No such ω exist

3. Express the angle $\theta = 3.6$ in terms of degrees, minutes, and seconds to the nearest second.

   A. $206°16'48"$

   B. $206°15'53"$

   C. $206°16'53"$

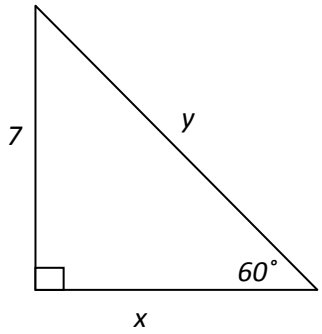
   D. $206°15'48"$

   E. None of the above

MA 15400 Exam 1 Fall 2009

Covers Lesson 1-11, Sections 6.1, 6.2. 6.3, 6.4 and all of 6.5

4. Find the exact values of *x* and *y*.



A. $x = 7\sqrt{2}, y = \sqrt{147}$

B. $x = 7, y = 7\sqrt{2}$

C. $x = \frac{7}{\sqrt{3}}, y = \frac{14}{\sqrt{3}}$

D. $x = 7\sqrt{3}, y = 14$

E. $x = \frac{7}{\sqrt{2}}, y = \frac{14}{\sqrt{2}}$

5. Astronomers have discovered a new planet called Dellyworth. It is a large, gaseous planet which is slowly losing its vegetation. Hot air blows continually around its surface. The distance between two points *A* and *B* on a planet's surface is measured along a circle having a center *C* at the center of the planet and radius equal to the distance from the center to the surface. This angle is known as $\angle ACB$

The **diameter** of Dellyworth is 14,000 miles. What is the distance, to the nearest tenth of a mile, between two points on the surface, *A* and *B*, if $m\angle ACB = 7'$? (Yes, that is 7 minutes)

A. 14.3 miles

B. 16.5 miles

C. 18.1 miles

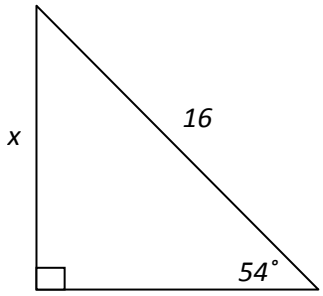
D. 15.7 miles

E. None of the above

MA 15400 Exam 1 Fall 2009

Covers Lesson 1-11, Sections 6.1, 6.2. 6.3, 6.4 and all of 6.5

6. Approximate the value of *x* to the nearest tenth.



A. 9.4

B. 22.0

C. 12.9

D. 19.8

E. None of the above

7. Which of the following is equivalent to $\tan\theta + \cot\theta$?

A. $\sec\theta\csc\theta$

B. $\cos\theta\sin\theta$

C. $\cot\theta\csc\theta$

D. $\cos\theta\csc\theta$

E. $\tan\theta\sec\theta$

8. Find the exact value of $\cos\theta$ if the terminal side of θ is in QII and parallel to the line $4x + 7y = 3$.

A. $\dfrac{-4}{\sqrt{65}}$

B. $\dfrac{7}{\sqrt{65}}$

C. $\dfrac{4}{\sqrt{65}}$

D. $\dfrac{-7}{\sqrt{65}}$

E. None of the above

Covers Lesson 1-11, Sections 6.1, 6.2. 6.3, 6.4 and all of 6.5

9. Let $P(t)=\left(\frac{7}{25},\frac{-24}{25}\right)$ be the point of intersection between the terminal side of the angle *t* and the unit circle. Find $P(-t+\pi)$.

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

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

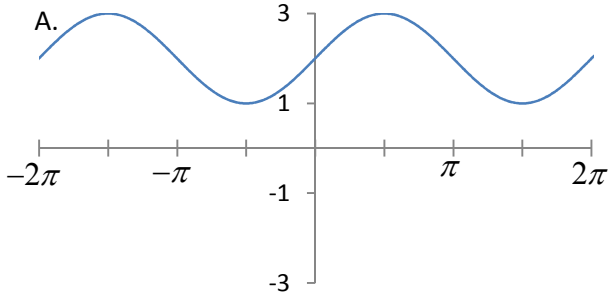
C. $\left(\frac{7}{25},\frac{-24}{25}\right)$

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

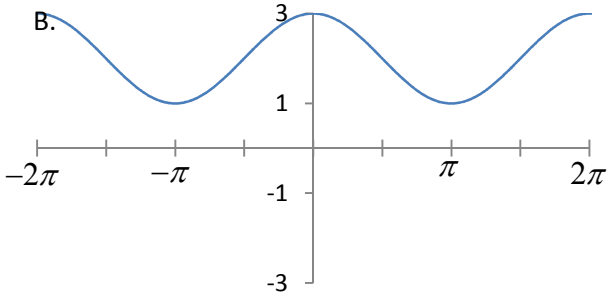
E. None of the above

10. Which of the following most closely resembles the graph of $y=\cos(x)-2$?
(There are only four choices)

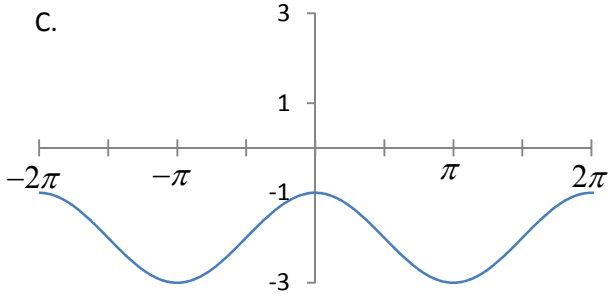
A.



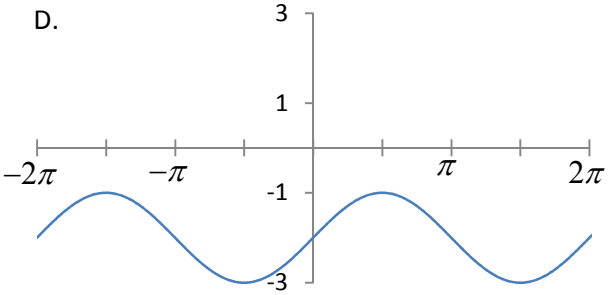
B.



C.



D.



MA 15400 Exam 1 Fall 2009

Covers Lesson 1-11, Sections 6.1, 6.2. 6.3, 6.4 and all of 6.5

11. Complete the statement: As $x \to 0^+, \tan x \to$ _____

A. ∞

B. 0

C. $-\infty$

D. -1

E. None of the above

12. Approximate $\csc(34°15')$ to four decimal places.

A. 1.7814

B. 1.2084

C. 1.7768

D. 1.2098

E. None of the above

13. Approximate, to the nearest 0.01 radian, all angles, in the interval $[0, 2\pi)$, which satisfies the equation $\sec\theta = -1.1389$.

A. $2.64, 5.78$

B. $0.50, 5.78$

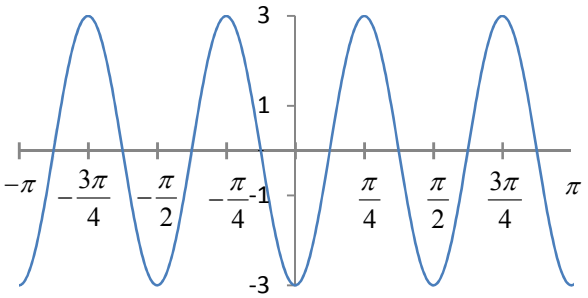
C. $0.50, 3.64$

D. $2.64, 3.64$

E. None of the above

Covers Lesson 1-11, Sections 6.1, 6.2. 6.3, 6.4 and all of 6.5

14. What is the period of the graphed sine curve?



A. $\text{period} = \frac{\pi}{2}$

B. $\text{period} = \pi$

C. $\text{period} = \frac{\pi}{4}$

D. $\text{period} = \frac{3\pi}{4}$

E. $\text{period} = 2\pi$

15. Find the equation, in the form $y = a\sin(bx+c)$ for $a>0, b>0,$ and least positive real number c, if amplitude = 3, period = 4, and phase shift = -2.

A. $y = 3\sin(2x+4)$

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

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

D. $y = 3\sin(2x+\pi)$

E. None of the above

MA 15400 Exam 1 Fall 2009

Covers Lesson 1-11, Sections 6.1, 6.2. 6.3, 6.4 and all of 6.5

Question	Answer	Letters
1.	$101°54'47"$	E
2.	QIV	D
3.	$206°15'53"$	B
4.	$x=\frac{7}{\sqrt{3}}, y=\frac{14}{\sqrt{3}}$	C
5.	14.3 miles	A
6.	12.9	C
7.	$\sec\theta\csc\theta$	A
8.	$\frac{-7}{\sqrt{65}}$	D
9.	$\left(\frac{-7}{25}, \frac{-24}{25}\right)$	B
10.	See Question	C
11.	0	B
12.	1.7768	C
13.	$2.64, 3.64$	D
14.	period $=\pi/2$	A
15.	$y=3\sin\left(\frac{\pi}{2}x+\pi\right)$	B