Covers Sections 6.1, 6.2, 6.3, 6.4. and all of 6.5

1. Find the angle that is **complementary** to 26° 9' 40".

A. 62° 26' 00"

B. 153° 50' 20"

C. 63° 06' 00"

D. 153° 51' 19"

E. None of the above.

2. Express the angle θ in terms of degrees, minutes, and seconds, to the nearest second.

$\theta = 4.6$

A. 263° 56' 06"

B. 263° 33' 38"

C. 263° 57' 06"

D. 263° 34' 38"

E. None of the above.

3. Find the reference angle for θ = 122 radians to the nearest hundredth of a **radian**.

A. 2.62

B. 1.19

C. 0.42

D. 0.52

E. None of the above.

Covers Sections 6.1, 6.2, 6.3, 6.4. and all of 6.5

4. Jupiter is the fifth planet from the Sun and by far the largest. Jupiter is more than twice as massive as all the other planets combined (the mass of Jupiter is 318 times that of Earth). Its obit is 483,633,704 miles and its diameter is 88,846 miles.

   A nautical mile on a planet is the distance on the surface subtended by a central angle of 1' from its center. Approximate the number of land miles in a nautical mile on Jupiter to the nearest tenth of a mile.

   A. 12.9 *miles*

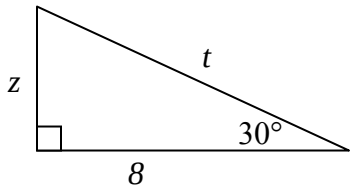
   B. 6.5 *miles*

   C. 25.8 *miles*

   D. 15.1 *miles*

   E. None of the above.

5. Find the exact values of z and t for the given right triangle.



   A. $z = 8\sqrt{3}, t = 16$

   B. $z = \frac{8}{\sqrt{3}}, t = \frac{16}{\sqrt{3}}$

   C. $z = 8, t = 8\sqrt{2}$

   D. $z = \frac{8}{\sqrt{2}}, t = 8\sqrt{2}$

   E. $z = 8\sqrt{3}, t = \frac{16}{\sqrt{3}}$

Covers Sections 6.1, 6.2, 6.3, 6.4. and all of 6.5

6. **Stonehenge blocks:** Stonehenge in Salisbury Plains, England, was constructed using solid stone blocks weighing over 97000 pounds each. Lifting a single stone required 550 people, who pulled the stone up a ramp inclined at an angle of 8°. To the nearest tenth of a foot, approximate the distance that a stone was moved **along the ramp** in order to raise it to a height of 34 feet above the level ground.

A. 241.9 *feet*

B. 34.3 *feet*

C. 244.3 *feet*

D. 54.6 *feet*

E. None of the above.

7. Approximate $\sec(78°18')$ to four decimal places.

A. 4.9313

B. 4.8819

C. 3.0212

D. 3.2071

E. None of the above.

Covers Sections 6.1, 6.2, 6.3, 6.4. and all of 6.5

8. $\dfrac{\csc\alpha}{\cot^2\alpha}$ is equivalent to which of the following?

A. $\csc\alpha\cot\alpha$

B. $\sec\alpha\cot\alpha$

C. $\csc\alpha\tan\alpha$

D. $\cos\alpha\sin\alpha$

E. $\sec\alpha\tan\alpha$

9. Find the exact value of $\tan\theta$ if θ is in standard position and the terminal side of θ is in quadrant *II* and is parallel to the line $3x+5y=9$.

A. $\dfrac{-5}{\sqrt{34}}$

B. $\dfrac{5}{3}$

C. $\dfrac{3}{\sqrt{34}}$

D. $\dfrac{-3}{5}$

E. None of the above.

Covers Sections 6.1, 6.2, 6.3, 6.4. and all of 6.5

10. If $\sec\theta = 8$ and $\cot\theta < 0$, find the exact value of $\sin\theta$.

A. $\frac{\sqrt{63}}{8}$

B. $\frac{-1}{8}$

C. $\frac{-\sqrt{63}}{8}$

D. $\frac{1}{8}$

E. None of the above.

11. Let $P(t) = \left(\frac{-7}{25}, \frac{-24}{25}\right)$ be the point on the unit circle that corresponds to *t*. Find the exact value of $P(-t+\pi)$.

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.

Covers Sections 6.1, 6.2, 6.3, 6.4. and all of 6.5

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

A. 1

B. ∞

C. $-\infty$

D. undefined

E. None of the above.

13. Approximate, to the nearest 0.01 **radians**, all angles θ in the interval $[0, 2\pi)$ that satisfy the equation $\cot(\theta) = -2.3412$.

A. $2.7379, 5.8795$

B. $0.4037, 3.5453$

C. $3.5453, 2.7379$

D. $0.4037, 5.8795$

E. None of the above.

14. Which of the following statements are true about the graph of $y = -2 + \cos x$?

I. The graph intercepts the *y*-axis at -2 .

II. The graph intercepts the *x*-axis at the origin.

III. $\left(\frac{\pi}{2}, -2\right)$ is a point on the graph.

IV. The graph is always **below** the *x*-axis.

A. Only I and II are true.

B. Only II and III are true.

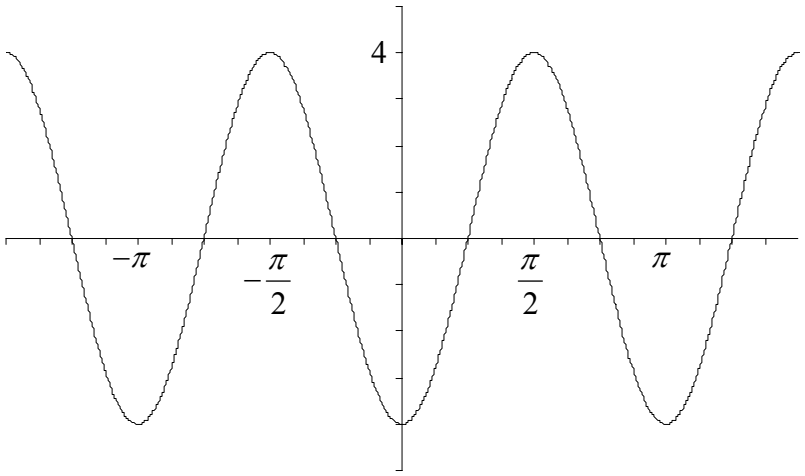
C. Only I and IV are true.

D. Only I, III and IV are true.

E. Only III and IV are true.

Covers Sections 6.1, 6.2, 6.3, 6.4. and all of 6.5

15. Find the equation of the graph in the form $y = a\sin(bx + c)$, with $a > 0, b > 0$ and least positive real c.



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

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

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

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

E. $y = 4\sin\left(\frac{1}{2}x + \frac{3\pi}{2}\right)$

Covers Sections 6.1, 6.2, 6.3, 6.4. and all of 6.5

Answers

Question	Answer	Letters
1.	63° 50' 20"	E
2.	263° 33' 38"	B
3.	0.52	D
4.	12.9 *miles*	A
5.	$z=\frac{8}{\sqrt{3}}, t=\frac{16}{\sqrt{3}}$	B
6.	244.3 *feet*	C
7.	4.9313	A
8.	$\sec\alpha\tan\alpha$	E
9.	$\frac{-3}{5}$	D
10.	$\frac{-\sqrt{63}}{8}$	C
11.	$\left(\frac{7}{25},\frac{-24}{25}\right)$	B
12.	$-\infty$	C
13.	2.7379, 5.8795	A
14.	Only III and IV are true.	E
15.	$y=4\sin\left(2x+\frac{3\pi}{2}\right)$	A