

Trigonometry-42

Review Packet

1. Determine **exact** value of each:

a.) $\sin -60^\circ$

b.) $4\cot 270^\circ - 8\csc 330^\circ$

a. _____, b. _____

c.) $\sec -\frac{\pi}{3}$

d.) $\csc 315^\circ$

c. _____, d. _____

2. In what quadrant does θ lie if $\cot \theta < 0$ and $\cos \theta < 0$?

2. _____

3. Determine $\cot \theta$ given that $\sin \theta = -\frac{\sqrt{3}}{2}$ and θ is in quadrant III?

3. _____

4. Name an angle that is coterminal to 405° ?

4. _____

5. What is the reference angle for -240° ?

5. _____

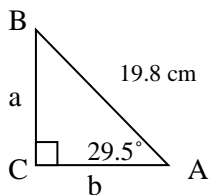
6. Find the value of θ such that $0 < \theta < 90^\circ$ and $\cos \theta = 0.1395$. (round to two decimal places)

6. _____

7. Evaluate $\sin 27^\circ \tan 69^\circ + \cos 27^\circ \cos 69^\circ$ using your calculator. (round to the nearest hundredth)

7. _____

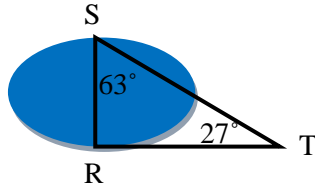
8. Determine the value of a and b in the given triangle. (round to two decimal places)



8. _____

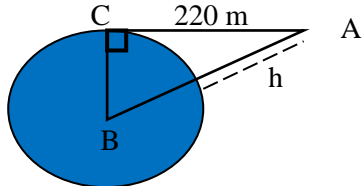
9. To find the distance RS across a lake, a surveyor lays off length $RT = 68.4$ m, so that $m\angle T = 27^\circ$ and $m\angle S = 63^\circ$. Determine the length of RS . (round to the nearest whole number)

R



9. _____

10. Find the height h above the surface of Earth so that a pilot at point A in the figure can see an object on the horizon at C, 220 miles away. Assume that the radius of Earth is 4000 miles. (round to the nearest whole number)



10. _____

11. Convert $\frac{5\pi}{6}$ radian to degrees. (round to the nearest degree)

11. _____

12. Convert 56° to radians. (round answer to the nearest tenth)

12. _____

13. Find the radius of a circle if arc AB has length of π and central angle of $\frac{3\pi}{8}$.

13. _____

14. Find the area of a sector with a radius of 50 miles and central angle of 95° . (round answer to the nearest tenth)

14. _____

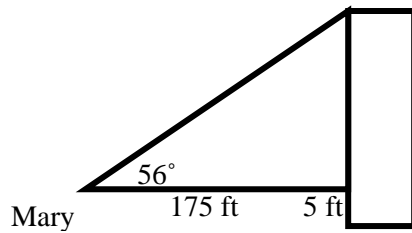
15. Find the **exact** value of each:

a.) $y = \arccos(-1)$

b.) $y = \tan^{-1}(-2)$

a. _____, b. _____

16. Mary is standing 175ft away from a building. She determines her angle of elevation to the top of the building to be 56° . Determine the height of the building if Mary's eye level is 5feet. (*round to the nearest foot*)



16. _____

17. Consider the function $y = -2\cos 3x$.

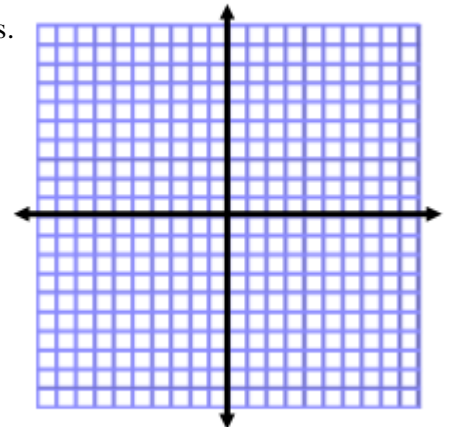
a.) Determine the amplitude of the function.

b.) Determine the period of the function.

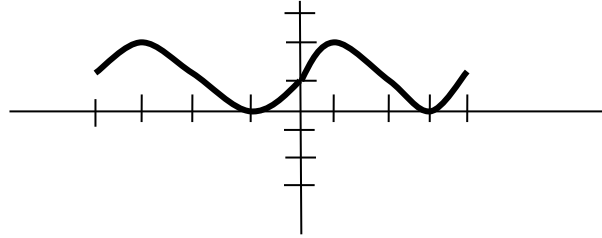
a. _____, b. _____

c.) Graph one full period of the function. Be sure to label your axes.

$y = \cos x$



18. What is the equation for the graph



a.) $y = \sin x - 1$

b.) $y = \cos x - 1$

c.) $y = \sin x + 1$

d.) $y = \cos x + 1$

19. What is the value of $\sin \theta$ if $\cos \theta = \frac{4}{5}$

19. _____

20. Choose the **exact** value of $\sin \frac{7\pi}{12}$ from the given solutions.

a.) $\frac{\sqrt{6} - \sqrt{2}}{4}$

b.) $\frac{\sqrt{6} + \sqrt{2}}{4}$

c.) $\frac{-\sqrt{6} - \sqrt{2}}{4}$

d.) $\frac{\sqrt{2} - \sqrt{6}}{4}$

21. If $\tan \theta = 1$ then what is the **exact** value of $\sin 2\theta$?

21. _____

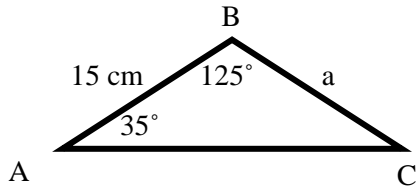
22. Solve $2\cot \theta + 1 = -1$.

22. _____

23. Solve by graphing with x in radians $5\cos x = \frac{1}{2}x$. (round to the nearest tenth)

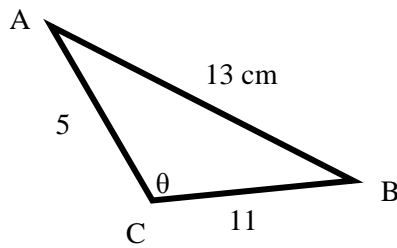
23. _____

24. Determine the value of a . (round to the nearest centimeter)



24. _____

25. Determine the value of θ . (round to the nearest degree)



25. _____

26. Find the area of a triangle whose sides are 8 cm, 11 cm, and 17 cm. (round to the nearest hundredth)

26. _____

Trigonometry Final Exam
Formula Sheet

$$\begin{aligned}\sin(\alpha + \beta) &= \sin \alpha \cos \beta + \cos \alpha \sin \beta & \cos(\alpha + \beta) &= \cos \alpha \cos \beta - \sin \alpha \sin \beta \\ \sin(\alpha - \beta) &= \sin \alpha \cos \beta - \cos \alpha \sin \beta & \cos(\alpha - \beta) &= \cos \alpha \cos \beta + \sin \alpha \sin \beta\end{aligned}$$

$$\begin{aligned}\sin(2\theta) &= 2\sin \theta \cos \theta \\ \cos(2\theta) &= \cos^2 \theta - \sin^2 \theta \\ \cos(2\theta) &= 1 - 2\sin^2 \theta \\ \cos(2\theta) &= 2\cos^2 \theta - 1\end{aligned}$$

$$\tan \theta = \frac{\sin \theta}{\cos \theta} \qquad \cot \theta = \frac{\cos \theta}{\sin \theta}$$

$$\sin^2 \theta + \cos^2 \theta = 1 \qquad \tan^2 \theta + 1 = \sec^2 \theta \qquad 1 + \cot^2 \theta = \csc^2 \theta$$