



Name _____ Period _____ Date _____

NON-CALCULATOR SECTION

Vocabulary: Define each word and give an example.

1. Radian
2. Sine
3. Coterminal angles

Short Answer:

4. How do you convert from radians to degrees?
5. How do you find the reference angle for an angle whose terminal side is in Quadrant II?

Review:

6. For the function $f(x) = 2^{x+4} - 5$, state the domain, range and horizontal asymptote.
7. Find the possible rational zeros of $2x^3 + 5x^2 - 7x + 6$
8. Find the product $(3 - 6i)(5 + 2i)$.
9. Solve: $\sqrt{x-3} = x-3$



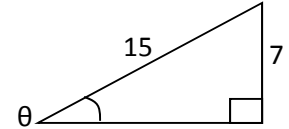
Problems:

Be sure to show all work used to obtain your answer. Circle or box in the final answer.

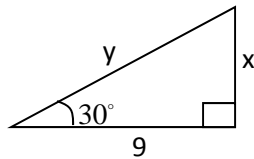
10. Find the exact values of the six trigonometric functions of θ .

$$\sin \theta = \underline{\hspace{2cm}} \quad \cos \theta = \underline{\hspace{2cm}} \quad \tan \theta = \underline{\hspace{2cm}}$$

$$\csc \theta = \underline{\hspace{2cm}} \quad \sec \theta = \underline{\hspace{2cm}} \quad \cot \theta = \underline{\hspace{2cm}}$$

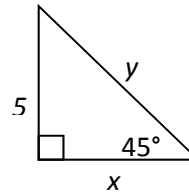
11. Find the value for x and y in the special right triangles shown below.

a)



$$x = \underline{\hspace{2cm}} \quad y = \underline{\hspace{2cm}}$$

b)



$$x = \underline{\hspace{2cm}} \quad y = \underline{\hspace{2cm}}$$

12. Determine the measure of an angle θ coterminal to an angle of -120° if $360^\circ \leq \theta \leq 720^\circ$.13. Find one positive and one negative coterminal angle of $\frac{5\pi}{4}$.14. Give the reference angle for $\theta = \frac{5\pi}{3}$.15. Find the arc length created with a radius of 20 cm and a central angle of 120° .16. The point $(2, -2)$ is on the terminal side of an angle in standard position. Give the smallest positive angle measure in both degrees and radians.17. x is an angle in standard position with $0 \leq x \leq 2\pi$. Determine the quadrant of x if $\cos x < 0$ and $\tan x < 0$.



18. Evaluate exactly:

a. $\cos \frac{4\pi}{3}$

b. $\sin \frac{3\pi}{4}$

c. $\tan 270^\circ$

d. $\sin \frac{\pi}{6}$

e. $\tan \frac{5\pi}{6}$

f. $\cos \frac{7\pi}{6}$

g. $\tan \frac{7\pi}{4}$

h. $\sin \frac{11\pi}{6}$

19. Find the exact value:

a. $\cos^{-1}\left(\frac{1}{2}\right)$

b. $\sin\left(\tan^{-1}\sqrt{3}\right)$

c. $\arcsin\left(\cos \frac{4\pi}{3}\right)$

d. $\tan^{-1}(\sin 2\pi)$

e. $\sin^{-1}\left(-\frac{\sqrt{2}}{2}\right)$

f. $\arccos\left(\sin \frac{\pi}{2}\right)$

MULTIPLE CHOICE QUESTIONS

20. If the tangent of an angle is negative and its cosine is positive, in which quadrant does the angle terminate?

A. I

B. II

C. III

D. IV

21. Which expression is NOT equivalent to $\sin 150^\circ$?A. $\sin 30^\circ$ C. $\cos 60^\circ$ B. $-\sin 210^\circ$ D. $-\cos 60^\circ$

22. A flower bed is planted in the shape of an arc along the edge of a circular walkway. If the circle has a radius of 5 yards and the angle subtended by the arc measures 1.5 radians, what is the length, in yards, of the border?

A. 0.5

B. 2

C. 5

D. 7.5

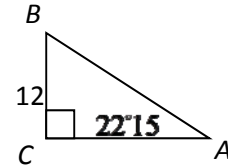
23. Expressed in radian measure, 235° isA. $\frac{\pi}{235}$ B. $\frac{47\pi}{36}$ C. $\frac{235}{\pi}$ D. $\frac{36\pi}{47}$



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CALCULATOR SECTION

1. Solve the following triangle.



2. From a distance of 20 feet away from the base, the angle of elevation to the top of a tree is 43° . How tall is the tree?
3. A ramp leading to a freeway overpass is 705 ft long and rises 48 ft. What is the average angle of inclination of the ramp to the nearest tenth of a degree?
4. Convert from decimal form to DMS. 34.59°
5. Convert from DMS to decimal form. $102^\circ 45' 54''$
6. Find the perimeter of a 65° piece of pizza if the radius is 9 inches.



7. To the nearest revolution, how many times will a bicycle wheel measuring 26 inches in diameter turn if it is ridden for one mile? (1 mile = 5280 feet)

8. Find $\sin \theta$ and $\tan \theta$ if $\cos \theta = -\frac{3}{7}$ and $\sin \theta > 0$.

9. Use a calculator to find the approximate value of $\sin^{-1}(-.4)$. Express your answer in radians and degrees.