

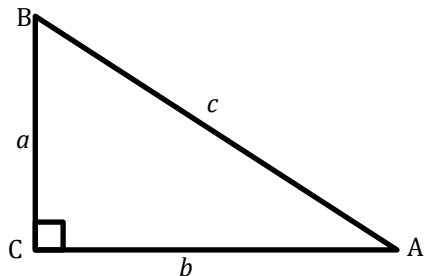
Algebra 2

10-Review

Take this test as you would take a test in class. When you are finished, check your work against the answers.

10-01

Evaluate the six trigonometric function for the following triangle if $a = 9$ and $c = 10$. Find exact answers.



1. Using angle A ($\sin A$, $\cos A$, etc.)
2. Using angle B ($\sin B$, $\cos B$, etc.)
3. A diagonal beam on a trestle bridge makes an angle of 30° with the horizontal base. If the beam is 20 ft long, how high will the end of the beam be above the horizontal base?

10-02

Consider an angle in standard position that measures $\frac{5\pi}{4}$ for the following problems.

4. Determine two coterminal angles (one positive and one negative).
5. Find the reference angle in radians.

Convert the degree measure to radians or the radian measure to degrees. Find the exact answers.

6. 300°
7. $\frac{2\pi}{3}$
8. $\frac{5\pi}{12}$

10-03

Evaluate the function. Find the exact answers.

9. $\csc \frac{2\pi}{3}$
10. $\cos -150^\circ$
11. $\cot \frac{\pi}{4}$
12. $\sin \frac{5\pi}{3}$
13. $\tan \frac{\pi}{6}$

A point on angle θ is $(4, 3)$. Find the following.

14. $\sin \theta$
15. $\cos \theta$
16. $\tan \theta$
17. $\sec \theta$
18. $\csc \theta$
19. $\cot \theta$

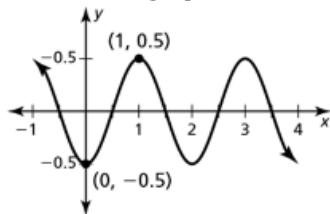
10-04, 10-05

Consider the following function,
 $y = 10 \sin 2(x + 4) - 3$ for the following problems.

20. Find the period
21. Find the horizontal shift
22. Find the midline
23. Find the amplitude

10-06

24. Consider the graph. Find a function to model the graph.

**10-07**

Use trigonometric identities to simplify.

25. $-\frac{\tan \theta}{\sec \theta}$

26. $\sin \theta \sec \theta$

Verify the identities.

27. $\frac{1-\cos^2 \theta}{\sec^2 \theta} - \sin^2 \theta = -\sin^4 \theta$

28. $\csc x + \cot x = \frac{\sin x}{1-\cos x}$

Answers

1. $\sin A = \frac{9}{10}, \cos A = \frac{\sqrt{19}}{10}, \tan A = \frac{9\sqrt{19}}{19}, \csc A =$

$\frac{10}{9}, \sec A = \frac{10\sqrt{19}}{19}, \cot A = \frac{\sqrt{19}}{9}$

2. $\sin B = \frac{\sqrt{19}}{10}, \cos B = \frac{9}{10}, \tan B = \frac{\sqrt{19}}{9}, \csc B =$

$\frac{10\sqrt{19}}{19}, \sec B = \frac{10}{9}, \cot B = \frac{9\sqrt{19}}{19}$

3. 10 feet

4. $\frac{13\pi}{4}, -\frac{3\pi}{4}$

5. $\frac{\pi}{4}$

6. $\frac{5\pi}{3}$

7. 120°

8. 75°

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

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

11. 1

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

13. $\frac{\sqrt{3}}{3}$

14. $\frac{3}{5}$

15. $\frac{4}{5}$

16. $\frac{3}{4}$

17. $\frac{5}{4}$

18. $\frac{5}{3}$

19. $\frac{4}{3}$

20. π

21. -4

22. $y = -3$

23. 10

24. $y = -0.5 \cos \pi x$

25. $-\sin \theta$

26. $\tan \theta$

27. $\frac{1-\cos^2 \theta}{\sec^2 \theta} - \sin^2 \theta$

$\frac{1}{\sec^2 \theta} - \frac{\cos^2 \theta}{\sec^2 \theta} - \sin^2 \theta$

$\cos^2 \theta - \cos^2 \theta \cos^2 \theta - \sin^2 \theta$

$\cos^2 \theta (1 - \cos^2 \theta) - \sin^2 \theta$

$\cos^2 \theta \sin^2 \theta - \sin^2 \theta$

$\sin^2 \theta (\cos^2 \theta - 1)$

$\sin^2 \theta (-\sin^2 \theta)$

$-\sin^4 \theta$

28. $\frac{\sin x}{1-\cos x}$

$\frac{\sin x}{1-\cos x} \cdot \frac{1+\cos x}{1+\cos x}$

$\frac{\sin x(1+\cos x)}{1-\cos^2 x}$

$\frac{\sin x(1+\cos x)}{\sin^2 x}$

$\frac{1+\cos x}{\sin x}$

$\frac{1}{\sin x} + \frac{\cos x}{\sin x}$

$\csc x + \cot x$