

Right Triangle Trigonometry

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Use the given trigonometric function value of θ to find the requested trigonometric function value of the acute angle θ . Rationalize the denominator where necessary.

1) $\sin \theta = \frac{5}{13}$ Find $\tan \theta$. 1) _____

- A) $\frac{13}{12}$ B) $\frac{13}{5}$ C) $\frac{12}{5}$ D) $\frac{5}{12}$

2) $\cot \theta = \frac{\sqrt{3}}{3}$ Find $\sin \theta$. 2) _____

- A) $\frac{1}{2}$ B) 2 C) $\frac{\sqrt{3}}{2}$ D) $\sqrt{3}$

Rewrite the expression in terms of $\sin \theta$ and $\cos \theta$.

3) $\tan \theta (\cot \theta - \cos \theta)$ 3) _____

- A) $-\sec^2 \theta$ B) 0 C) 1 D) $1 - \sin \theta$

4) $\frac{\tan \theta}{\sec \theta}$ 4) _____

- A) $\sec^2 \theta$ B) $\cos^3 \theta$ C) $\sin \theta$ D) $\tan^2 \theta$

5) $\cos \theta \tan \theta$ 5) _____

- A) $\cot \theta$ B) $\cos \theta$ C) 1 D) $\sin \theta$

Use the fundamental identities to simplify the expression.

6) $\sin^2 \theta + \tan^2 \theta + \cos^2 \theta$ 6) _____

- A) $\sin \theta$ B) $\tan^2 \theta$ C) $\cos^3 \theta$ D) $\sec^2 \theta$

7) $\frac{\cos^2 \theta}{\sin^2 \theta} + \csc \theta \sin \theta$ 7) _____

- A) 1 B) $\csc^2 \theta$ C) $\tan^2 \theta$ D) $\sec^2 \theta$

Rewrite the expression in terms of $\sin \theta$ and $\cos \theta$.

8) $\frac{\sin \theta \cos \theta}{\tan \theta}$ 8) _____

- A) $\sin \theta$ B) $\cos \theta$ C) $\cos^2 \theta$ D) $\sin^2 \theta$

Use a calculator to find the approximate value of the expression. Round the answer to two decimal places.

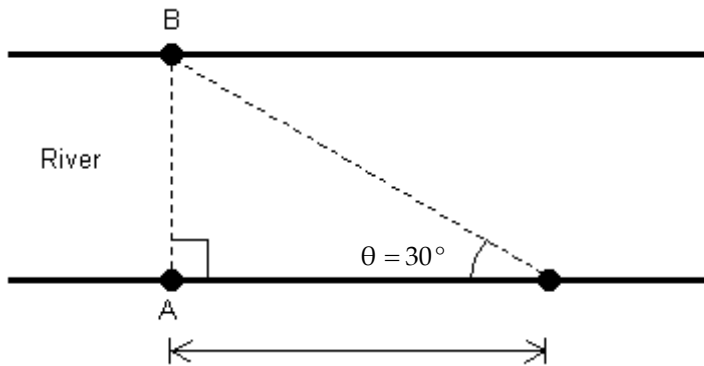
9) $\sin 61^\circ$ 9) _____

- A) -1.05 B) -0.97 C) 0.87 D) 0.95

- 10) $\cos 62^\circ$ 10) _____
 A) 0.47 B) 0.67 C) 0.53 D) 0.61
- 11) $\tan 72^\circ$ 11) _____
 A) 3.08 B) -0.26 C) -0.35 D) 3.17
- 12) $\cos \frac{5\pi}{12}$ 12) _____
 A) 0.26 B) 1.00 C) 0.17 D) 1.09

Solve the problem.

- 13) Find the height of a pine tree that casts a 48-foot shadow on the ground assuming that the angle of elevation from the point on the ground at the tip of the shadow to the sun is 63° . Round your answer to the nearest foot. 13) _____
 A) 94 ft B) 24 ft C) 22 ft D) 43 ft
- 14) A kite is currently flying at an altitude of 20 meters above the ground. If the angle of elevation from the ground to the kite is 35° , find the length of the kite string to the nearest meter. 14) _____
 A) 29 m B) 35 m C) 11 m D) 24 m
- 15) A conservation officer needs to know the width of a river in order to set instruments correctly for a study of pollutants in the river. From point A, the conservation officer walks 95 feet downstream and sights point B on the opposite bank to determine that $\theta = 30^\circ$ (see figure). How wide is the river? 15) _____



- A) 165 ft B) 47 ft C) 110 ft D) 55 ft

Answer Key

Testname: RIGHT TRIANGLE TRIGONOMETRY

- 1) D
- 2) C
- 3) D
- 4) C
- 5) D
- 6) D
- 7) B
- 8) C
- 9) C
- 10) A
- 11) A
- 12) A
- 13) A
- 14) B
- 15) D