

Convert the angle in radians to degrees.

1) $\frac{11\pi}{12}$

1) _____

Convert the angle in degrees to radians. Express the answer as multiple of π .

2) -54°

2) _____

If s denotes the length of the arc of a circle of radius r subtended by a central angle θ , find the missing quantity.

3) $r = 13.9$ inches, $\theta = 150^\circ$, $s = ?$

3) _____

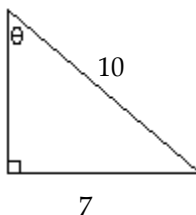
4) $r = \frac{1}{4}$ feet, $s = 6$ feet, $\theta = ?$

4) _____

Find the value of the indicated trigonometric function of the angle θ in the figure. Give an exact answer with a rational denominator.

5)

5) _____

Find $\cos \theta$.

Use identities to find the exact value of the indicated trigonometric function of the acute angle θ .

6) $\sin \theta = \frac{1}{4}$, $\cos \theta = \frac{\sqrt{15}}{4}$ Find $\cot \theta$.

6) _____

Use Fundamental Identities and/or the Complementary Angle Theorem to find the exact value of the expression. Do not use a calculator.

7) $\sec^2 80^\circ - \tan^2 80^\circ$

7) _____

8) $\cos 40^\circ \sec 40^\circ$

8) _____

Use the definition or identities to find the exact value of the indicated trigonometric function of the acute angle θ .

9) $\tan \theta = \frac{4}{3}$ Find $\cos \theta$.

9) _____

Find the exact value. Do not use a calculator.

10) $\cot \frac{\pi}{4}$

10) _____

11) $\sec 60^\circ$

11) _____

If A denotes the area of the sector of a circle of radius r formed by the central angle θ , find the missing quantity. If necessary, round the answer to two decimal places.

12) $r = 4$ feet, $A = 47$ square feet, $\theta = ?$ 12) _____

Solve the problem.

13) A building 230 feet tall casts a 100 foot long shadow. If a person looks down from the top of the building, what is the measure of the angle between the end of the shadow and the vertical side of the building (to the nearest degree)? (Assume the person's eyes are level with the top of the building.) 13) _____

A point on the terminal side of angle θ is given. Find the exact value of the indicated trigonometric function.

14) $(3, 4)$ Find $\csc \theta$. 14) _____

Find the exact value of the indicated trigonometric function of θ .

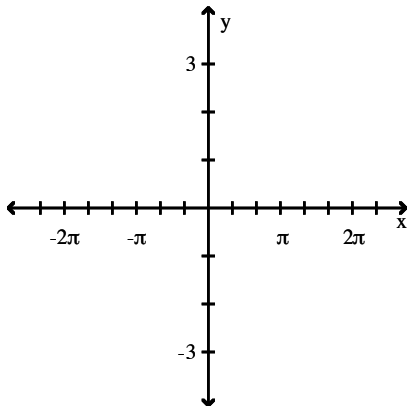
15) $\cos \theta = \frac{21}{29}$, $\frac{3\pi}{2} < \theta < 2\pi$ Find $\cot \theta$. 15) _____

Solve the problem.

16) For what numbers x , $0 \leq x \leq 2\pi$, does $\cos x = 0$? 16) _____

Use transformations to graph the function.

17) $y = -2 \cos \frac{1}{3}x$ 17) _____



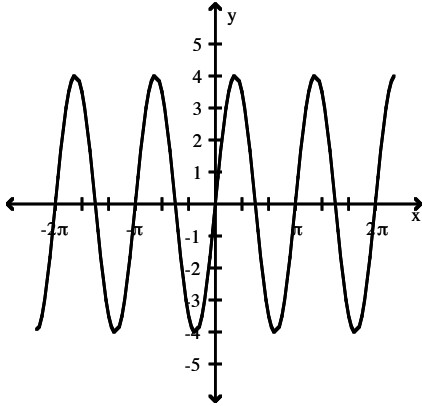
Without graphing the function, determine its amplitude or period as requested.

18) $y = -3 \sin \frac{1}{4}x$ Find the amplitude. 18) _____

19) $y = \cos 3x$ Find the period. 19) _____

Find an equation for the graph.

20)



20) _____

Find the phase shift.

21) $y = -3 \sin\left(x - \frac{\pi}{4}\right)$

21) _____

Find the exact value of the expression.

22) $\tan^{-1}(-\sqrt{3})$

22) _____

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

23) _____

Find the exact value of the expression. Do not use a calculator.

24) $\cos^{-1}\left(\cos \frac{\pi}{2}\right)$

24) _____

Find the exact value of the expression.

25) $\sin\left[\cos^{-1}\left(-\frac{\sqrt{2}}{2}\right)\right]$

25) _____

Simplify the expression.

26) $\frac{\cos \theta}{1 + \sin \theta} + \tan \theta$

26) _____

Establish the identity.

27) $(1 + \tan^2 u)(1 - \sin^2 u) = 1$

27) _____

28) $\tan \theta \cdot \csc \theta = \sec \theta$

28) _____

Find the exact value of the expression.

29) $\sin 165^\circ$

29) _____

30) $\cos 15^\circ \cos 45^\circ - \sin 15^\circ \sin 45^\circ$

30) _____

Solve the equation on the interval $0 \leq \theta < 2\pi$.

31) $2 \cos \theta + 3 = 2$

31) _____

32) $2 \sin^2 \theta - 3 \sin \theta - 2 = 0$

32) _____

Solve the problem.

33) A twenty-five foot ladder just reaches the top of a house and forms an angle of 41.5° with the wall of the house. How tall is the house? Round your answer to the nearest 0.1 foot.

33) _____

Solve the triangle.

34) $B = 40^\circ, C = 20^\circ, a = 2$

34) _____

Two sides and an angle are given. Determine whether the given information results in one triangle, two triangles, or no triangle at all. Solve any triangle(s) that results.

35) $a = 7, b = 5, B = 20^\circ$

35) _____

Solve the triangle.

36) $a = 7, b = 13, c = 15$

36) _____

Find the area of the triangle. If necessary, round the answer to two decimal places.

37) $A = 83^\circ, b = 9, c = 6$

37) _____