

Trigonometry Waiver Review

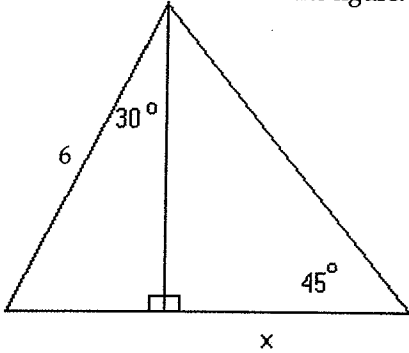
SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Find the reference angle for the given angle.

3) $A = 263.4^\circ$

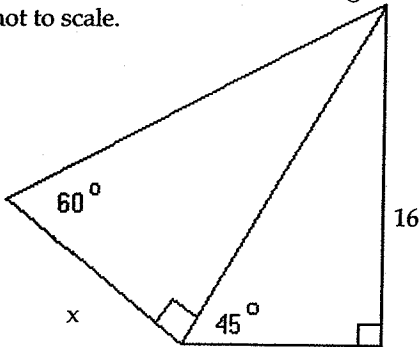
Solve the problem.

1) Find the exact value of x in the figure.



4) $A = -429^\circ$

2) Find the exact value of x in the figure. Figure is not to scale.



Use the fundamental identities to find the value of the trigonometric function.

5) Find $\tan \theta$ if $\sin \theta = \frac{3}{4}$ and θ is in quadrant II.

6) Find $\cot \theta$ if $\tan \theta = \frac{\sqrt{7}}{3}$ and θ is in quadrant

III.

Find the specified quantity.

- 7) Find the amplitude, period and phase shift of $y = 5 \sin\left(2x + \frac{\pi}{2}\right)$.

- 8) Find amplitude, period, phase shift and the vertical translation of $y = 5 + 2 \sin\left(6x + \frac{\pi}{6}\right)$.

- 11) Find $\cos \theta$ if $\tan \theta = 3$ and $\sin \theta < 0$.

- 12) Find $\sin \theta$ if $\tan \theta = -\frac{12}{5}$ and $\cos \theta > 0$.

Perform the indicated operations and simplify the result.

- 13) $\csc \theta (\sin \theta + \cos \theta)$

Use the fundamental identities to find the value of the trigonometric function.

- 9) Find $\sin s$ if $\cos s = \frac{2}{3}$ and s is in quadrant IV.

14) $\frac{\sin \theta}{\cos \theta} + \frac{\cos \theta}{\sin \theta}$

- 10) Find $\cos s$ if $\tan s = \frac{2}{5}$ and s is in quadrant III.

Factor the trigonometric expression.

15) $\sin^2 x + \sin^2 x \cot^2 x$

19) $\frac{1 + \tan^2 x}{\sec x}$

Use the fundamental identities to simplify the expression.

16) $\frac{\csc \theta \cot \theta}{\sec \theta}$

Use an appropriate identity to find the exact value of the expression.

20) $\cos(195^\circ)$

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

Find the exact value by using a sum or difference identity.

21) $\sin 15^\circ$

Simplify the expression.

18) $\cos x (\csc x - \sec x) - \cot x$

22) $\tan 75^\circ$

Use the identities for the cosine of a sum or a difference to write the expression as a single function of x .

23) $\cos(90^\circ - x)$

26) Find $\sin(A - B)$ given that $\cos A = \frac{1}{3}$, with A in quadrant I, and $\sin B = -\frac{1}{2}$, with B in quadrant IV.

Using a sum or difference identity, write the following as an expression involving functions of x .

24) $\sin\left(x - \frac{\pi}{2}\right)$

27) Find $\cos(A + C)$ given that $\cos A = \frac{1}{3}$, with A in quadrant I, and $\sin C = \frac{1}{4}$, with C in quadrant II.

Find the exact value of the expression using the provided information.

25) Find $\cos(B + C)$ given that $\sin B = -\frac{1}{2}$, with B in quadrant IV, and $\sin C = \frac{1}{4}$, with C in quadrant II.

Find the exact functional value.

28) If $\cos \alpha = -\frac{5}{13}$ and $\tan \alpha < 0$, then find $\sin 2\alpha$.

29) If $\sin \theta = -\frac{4}{5}$ and $\cot \theta < 0$, then find $\cos 2\theta$.

Find the exact value of the real number y .

$$33) y = \sin^{-1}\left(\frac{\sqrt{3}}{2}\right)$$

30) If $\sin x = -\frac{4}{5}$, and $\frac{3\pi}{2} < x < 2\pi$, then find $\tan 2x$.

$$34) y = \csc^{-1}(-1)$$

Determine all solutions of the equation in radians.

31) Find $\sin \frac{\theta}{2}$, given that $\cos \theta = \frac{1}{4}$ and θ terminates in $0 < \theta < 90^\circ$.

$$35) y = \arctan(1)$$

Solve the equation exactly over the interval $[0, 2\pi)$.

$$36) \sin^2 x + \sin x = 0$$

32) Find $\sin \frac{x}{2}$, given that $\sin x = \frac{1}{4}$ and x terminates in $0 < x < \pi/2$.

$$37) \cos^2 x + 2 \cos x + 1 = 0$$

$$41) \sin x \cos x = \frac{1}{2}$$

Solve the equation exactly over the interval $[0, 360^\circ)$.

$$38) \cos^2 \theta \sin \theta = \sin \theta$$

$$42) \sin^2 2x = 1$$

$$39) \sin^2 \theta - \sin \theta - 12 = 0$$

$$43) \sin 2x + \sin x = 0$$

Solve the equation exactly over the interval $[0, 2\pi)$.

$$40) \sin 4x = \frac{\sqrt{3}}{2}$$

Solve the equation exactly over the interval $[0, 360^\circ)$.

$$44) \sin 2\theta = \cos \theta$$

$$45) \sin 2\theta = -\frac{1}{2}$$

What is the degree measure whose radian measure is the following?

$$50) \frac{8\pi}{3}$$

Solve the equation exactly.

$$46) \cos^{-1} x - \tan^{-1} \left(\frac{\sqrt{3}}{3} \right) = \frac{2\pi}{3}$$

$$51) -\frac{\pi}{6}$$

What is the radian measure whose degree measure is the following?

$$52) 150^\circ$$

$$47) \arcsin x = \arccos \frac{3}{5}$$

$$53) -60^\circ$$

Find the values of $\sin \alpha$, $\cos \alpha$, $\tan \alpha$ for the angle α in standard position having the following coordinates.

$$48) (5, -12)$$

$$49) (1, \sqrt{3})$$

Trigonometry Waiver Review Answer Key

- 1) $3\sqrt{3}$
- 2) $\frac{16\sqrt{6}}{3}$
- 3) 83.4°
- 4) 69°
- 5) $-\frac{3\sqrt{7}}{7}$
- 6) $\frac{3\sqrt{7}}{7}$
- 7) 5
- 8) Up 5
- 9) $-\frac{\sqrt{5}}{3}$
- 10) $-\frac{5\sqrt{29}}{29}$
- 11) $-\frac{\sqrt{10}}{10}$
- 12) $-\frac{12}{13}$
- 13) $1 + \cot \theta$
- 14) $\sec \theta \csc \theta$
- 15) 1
- 16) $\cot^2 \theta$
- 17) $\csc^2 \theta$
- 18) -1
- 19) $\sec x$
- 20) $\frac{-\sqrt{2}(\sqrt{3}+1)}{4}$
- 21) $\frac{\sqrt{2}(\sqrt{3}-1)}{4}$
- 22) $\sqrt{3}+2$
- 23) $\sin x$
- 24) $-\cos x$
- 25) $\frac{1-3\sqrt{5}}{8}$
- 26) $\frac{2\sqrt{6}+1}{6}$
- 27) $-\frac{\sqrt{15}+2\sqrt{2}}{12}$
- 28) $-\frac{120}{169}$
- 29) $-\frac{7}{25}$
- 30) $\frac{24}{7}$
- 31) $\frac{\sqrt{6}}{4}$
- 32) $\frac{\sqrt{8-2\sqrt{15}}}{4}$
- 33) $\frac{\pi}{3}$
- 34) $-\frac{\pi}{2}$
- 35) $\frac{\pi}{4}$
- 36) $\left\{0, \pi, \frac{3\pi}{2}\right\}$
- 37) $\{\pi\}$
- 38) $\{0^\circ, 180^\circ\}$
- 39) \emptyset
- 40) $\left\{\frac{\pi}{12}, \frac{\pi}{6}, \frac{2\pi}{3}, \frac{7\pi}{12}, \frac{7\pi}{6}, \frac{13\pi}{12}, \frac{5\pi}{3}, \frac{19\pi}{12}\right\}$
- 41) $\left\{\frac{\pi}{4}, \frac{5\pi}{4}\right\}$
- 42) $\left\{\frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4}\right\}$
- 43) $\left\{\frac{2\pi}{3}, \pi, \frac{4\pi}{3}\right\}$
- 44) $\{30^\circ, 90^\circ, 150^\circ, 270^\circ\}$
- 45) $\{105^\circ, 165^\circ, 285^\circ, 345^\circ\}$
- 46) $\left\{-\frac{\sqrt{3}}{2}\right\}$
- 47) $\left\{\frac{4}{5}\right\}$
- 48) $-\frac{12}{13}, \frac{5}{13}, -\frac{12}{5}, -\frac{5}{12}, \frac{13}{5}, -\frac{13}{12}$
- 49) $\frac{\sqrt{3}}{2}, \frac{1}{2}, \sqrt{3}, \frac{\sqrt{3}}{3}, 2, \frac{2\sqrt{3}}{3}$
- 50) 480°
- 51) -30°
- 52) $\frac{5\pi}{6}$
- 53) $-\frac{\pi}{3}$