

Houston Community College
Trig
Review for Exam One

Name _____

Find the measures of two angles, one positive and one negative, that are coterminal with the given angle.

1) $\frac{7\pi}{3}$

A) $\frac{\pi}{3}, -\frac{13\pi}{3}$

B) $\frac{10\pi}{3}, -\frac{10\pi}{3}$

C) $\frac{10\pi}{3}, -\frac{\pi}{3}$

D) $\frac{13\pi}{3}, -\frac{\pi}{3}$

For the given angle, name the quadrant in which the terminal side lies.

2) -350°

A) I

B) II

C) III

D) IV

Find the angle of smallest possible positive measure that is coterminal with the given angle.

3) 434°

A) 64°

B) 217°

C) 254°

D) 74°

Convert the angle to decimal degrees and round to the nearest hundredth of a degree.

4) $165^\circ 50' 12''$

A) 165.85°

B) 165.80°

C) 165.90°

D) 165.84°

Convert the angle to degrees, minutes, and seconds.

5) 186.83°

A) $186^\circ 50' 48''$

B) $186^\circ 49' 48''$

C) $186^\circ 49' 83''$

D) $186^\circ 47' 83''$

Perform the calculation. Express the answer in degree–minutes–seconds format.

6) $12^\circ 38' + 12^\circ 39'$

A) $18^\circ 17'$

B) $25^\circ 17'$

C) $25^\circ 77'$

D) $18^\circ 77'$

7) $180^\circ - 5^\circ 48' 15''$

A) $174^\circ 12' 45''$

B) $175^\circ 11' 45''$

C) $174^\circ 11' 45''$

D) $175^\circ 12' 45''$

Convert the angle to radians. Leave as a multiple of π .

8) 630°

A) 7π

B) $\frac{7\pi}{2}$

C) $-\frac{7\pi}{4}$

D) $-\frac{7\pi}{2}$

Convert the radian measure to degree measure. Use the value of π found on a calculator and round answers to two decimal places.

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

A) 480°

B) 8.37°

C) 240°

D) $960\pi^\circ$

Find the measures of two angles, one positive and one negative, that are coterminal with the given angle.

10) $\frac{9\pi}{10}$

A) $\frac{29\pi}{10}, -\frac{11\pi}{10}$

B) $\frac{19\pi}{10}, -\frac{19\pi}{10}$

C) $\frac{11\pi}{10}, -\frac{29\pi}{10}$

D) $\frac{19\pi}{10}, -\frac{11\pi}{10}$

For the given angle, name the quadrant in which the terminal side lies.

11) $\frac{7\pi}{8}$

A) III

B) II

C) I

D) IV

Find a positive angle less than 360° that is coterminal with the given angle.

12) $-\frac{3\pi}{7}$

A) $\frac{25\pi}{7}$

B) $\frac{3\pi}{7}$

C) $\frac{11\pi}{7}$

D) $\frac{18\pi}{7}$

Find the length of the arc intercepted by the given central angle α in a circle of radius r .

13) $\alpha = \frac{3\pi}{4}, r = 93.3$ m

A) 390.8 m

B) 219.8 m

C) 124.4 m

D) 70 m

Find the radius of a circle with central angle α intercepting an arc of length s .

14) $\alpha = 2.5$ radians, $s = 15$ in.

A) 6.3 in.

B) 11.9 in.

C) 37.5 in.

D) 6 in.

Find the area of a sector with the given central angle α in a circle of radius r .

15) $\alpha = 2, r = 10$ inches

A) 100 sq in.

B) 20 sq in.

C) 10 sq in.

D) 200 sq in.

Solve the problem.

16) The minute hand of a clock is 14 inches long. What distance does its tip move in 23 minutes?

A) $\frac{161}{15}\pi$ in.

B) $\frac{23}{420}\pi$ in.

C) $\frac{161}{30}\pi$ in.

D) $\frac{23}{840}\pi$ in.

Solve.

17) Express the angular velocity of 800 rad/sec in rev/sec (to the nearest hundredth).

A) 127.32 rev/s

B) 254.65 rev/s

C) 2,513.27 rev/s

D) 5,026.55 rev/s

Solve the problem.

18) A wheel with a 24-inch diameter is turning at the rate of 32 revolutions per minute. To the nearest inch per minute, what is the linear velocity of a point on the rim?

A) 2459 in./min

B) 2420 in./min

C) 2413 in./min

D) 2466 in./min

Find the quadrant that contains the terminal side of angle α .

19) $\sec \alpha < 0$ and $\csc \alpha < 0$

- A) I B) II C) III D) IV

Solve the problem.

20) Find the acute angle α (in degrees) that satisfies the equation $\cos \alpha = \left(\frac{\sqrt{2}}{2}\right)$.

- A) 330° B) 315° C) 45° D) 30°

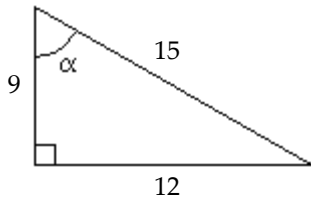
Use a calculator to find the acute angle α (to the nearest tenth of a degree) that satisfies the equation.

21) $\alpha = \tan^{-1}(1.8874244)$

- A) 117.9° B) 242.1° C) 27.9° D) 62.1°

Evaluate the function requested. Write your answer as a fraction in lowest terms.

22) Find $\sin \alpha$.



- A) $\frac{4}{3}$ B) $\frac{4}{5}$ C) $\frac{5}{4}$ D) $\frac{3}{5}$

Solve the right triangle with the given sides and angles.

23) $a = 3.0$, $\beta = 31.0^\circ$

- A) $\alpha = 59.0^\circ$, $b = 0.7$, $c = 3.1$ B) $\alpha = 59.0^\circ$, $b = 3.7$, $c = 4.8$
C) $\alpha = 59.0^\circ$, $b = 1.8$, $c = 3.5$ D) $\alpha = 59.0^\circ$, $b = 3.7$, $c = 3.5$

Solve the problem.

24) From a boat on the lake, the angle of elevation to the top of a cliff is $28^\circ 2'$. If the base of the cliff is 2351 feet from the boat, how high is the cliff (to the nearest foot)?

- A) 1265 ft B) 1252 ft C) 1262 ft D) 1255 ft

25) Find $\sin(\alpha)$, given that $\cos(\alpha) = \frac{2}{3}$ and α is in quadrant IV.

- A) $-\sqrt{5}$ B) $-\frac{\sqrt{5}}{3}$ C) $-\frac{\sqrt{5}}{2}$ D) $-\frac{3}{2}$

Find the reference angle for the given angle.

26) 121°

- A) 59° B) 31° C) 41° D) 69°

Use reference angles to find the exact value of the expression.

27) $\sec \frac{5\pi}{4}$

A) $-\frac{2\sqrt{3}}{3}$

B) $\frac{\sqrt{2}}{2}$

C) $-\sqrt{2}$

D) -2

28) $\tan 750^\circ$

A) $\frac{\sqrt{3}}{2}$

B) $-\sqrt{3}$

C) $\sqrt{3}$

D) $\frac{\sqrt{3}}{3}$

Determine the amplitude of the given function.

29) $y = -2 \sin \left(x + \frac{\pi}{6} \right)$

A) -2

B) 2

C) $\frac{\pi}{6}$

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

Find the phase shift of the function.

30) $y = -4 \cos \left(x + \frac{\pi}{2} \right)$

A) 2π

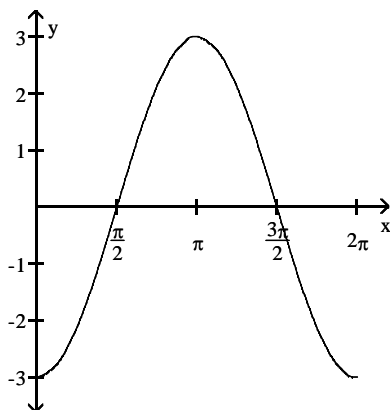
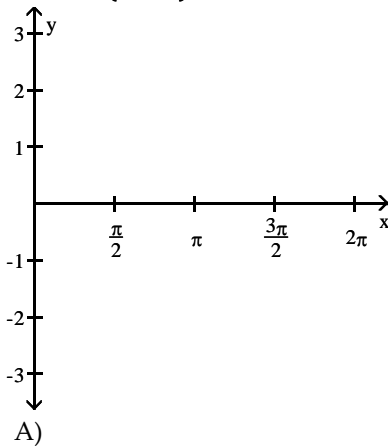
B) -4

C) $\frac{\pi}{2}$

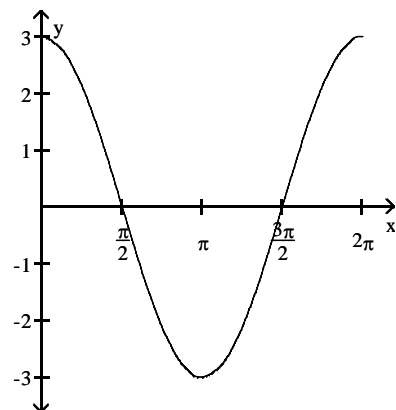
D) $-\frac{\pi}{2}$

Graph the function over a one-period interval.

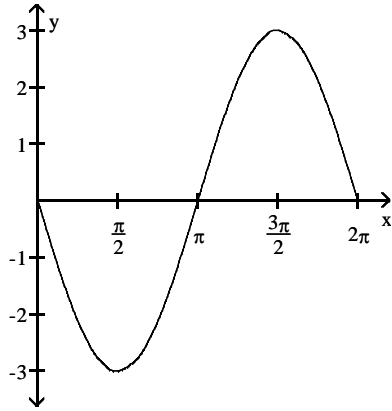
31) $y = -3 \cos \left(x + \frac{\pi}{2} \right)$



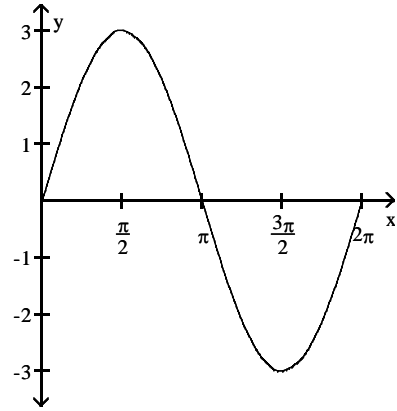
B)



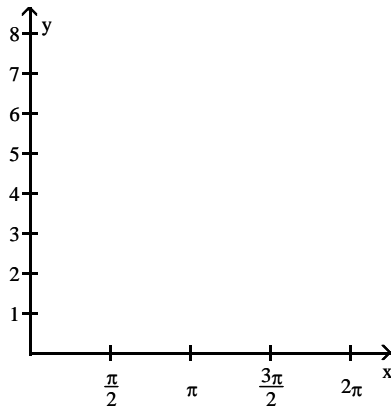
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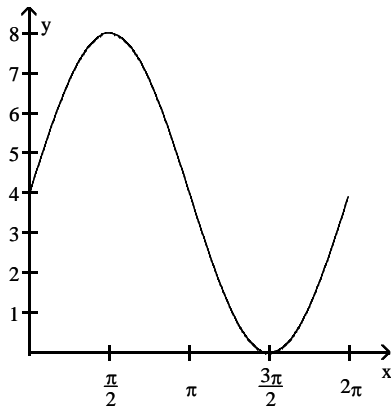
D)



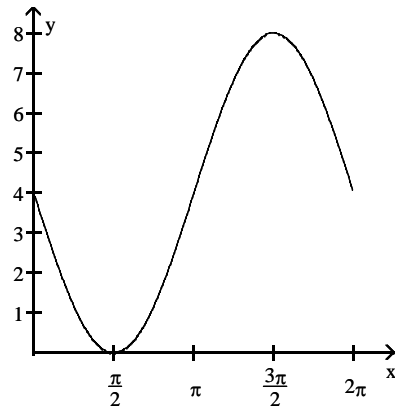
32) $y = 4 \sin(x - \pi) + 4$

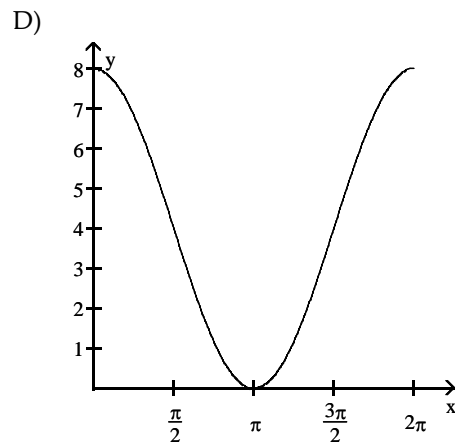
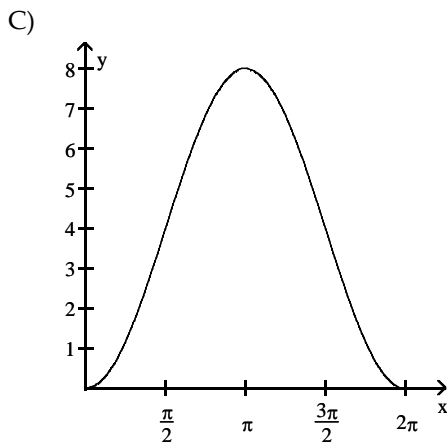


A)



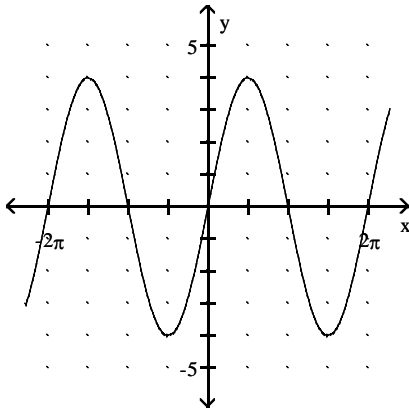
B)





Determine the equation of the function that is graphed.

33)



A) $y = 4 \cos x$

B) $y = \cos x + 4$

C) $y = \sin(x + 4)$

D) $y = 4 \sin x$

Find the equation for the curve in its final position.

34) The graph $y = \sin(x)$ is shifted a distance of $\pi/2$ to the right, stretched by a factor of 5, translated 3 units downward, then reflected in the x -axis.

A) $y = -5 \sin\left(x - \frac{\pi}{2}\right) - 3$

B) $y = -5 \sin\left(x + \frac{\pi}{2}\right) + 3$

C) $y = -5 \sin\left(x - \frac{\pi}{2}\right) - 15$

D) $y = -5 \sin\left(x - \frac{\pi}{2}\right) + 3$

Answer Key

Testname: TRIG REVIEW 1

- 1) D
- 2) A
- 3) D
- 4) D
- 5) B
- 6) B
- 7) C
- 8) B
- 9) A
- 10) A
- 11) B
- 12) C
- 13) B
- 14) D
- 15) A
- 16) A
- 17) A
- 18) C
- 19) C
- 20) C
- 21) D
- 22) B
- 23) C
- 24) B
- 25) B
- 26) A
- 27) C
- 28) D
- 29) B
- 30) D
- 31) D
- 32) B
- 33) D
- 34) D