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QUESTION 1



Drag and drop the correct answer into the space(s) provided.

Let

$$\cos \theta = -\frac{24}{25}$$

, where

θ

is in Quadrant III. Find the exact values of the 5 remaining trigonometric functions of

θ

.

$\sin \theta =$

$$-\frac{7}{25}$$



$\tan \theta =$

$$\frac{7}{24}$$



$\sec \theta =$

$$-\frac{25}{24}$$



$\csc \theta =$

$$-\frac{25}{7}$$



$\cot \theta =$

$$\frac{24}{7}$$



QUESTION 2



Drag and drop the correct answer into the space(s) provided.

Let

$$\sin \theta = -\frac{12}{13}$$

, where

 θ

is in Quadrant IV.

A point on the terminal side of

 θ

is

$$(5, -12)$$



QUESTION 3



Drag and drop the correct answer into the space(s) provided.

Let

$$\tan \theta = -\frac{5}{6}$$

, where

$$\sin \theta > 0$$

. Find the exact values of the 5 remaining trigonometric functions of θ

$$\cos \theta =$$

$$-\frac{6\sqrt{61}}{61} \quad \checkmark$$

$$\sin \theta =$$

$$\frac{5\sqrt{61}}{61} \quad \checkmark$$

$$\sec \theta =$$

$$-\frac{\sqrt{61}}{6} \quad \checkmark$$

$$\csc \theta =$$

$$\frac{\sqrt{61}}{5} \quad \checkmark$$

$$\cot \theta =$$

$$-\frac{6}{5} \quad \checkmark$$

QUESTION 4



Drag and drop the correct answer into the space(s) provided.

Let

$$\tan \theta = \frac{8}{3}$$

, where

$$\sin \theta > 0$$

. Find the exact values of the 5 remaining trigonometric functions of θ

.

$$\cos \theta =$$

$$\frac{3\sqrt{73}}{73}$$

✓

$$\sin \theta =$$

$$\frac{8\sqrt{73}}{73}$$

✓

$$\sec \theta =$$

$$\frac{\sqrt{73}}{3}$$

✓

$$\csc \theta =$$

$$\frac{\sqrt{73}}{8}$$

✓

$$\cot \theta =$$

$$\frac{3}{8}$$

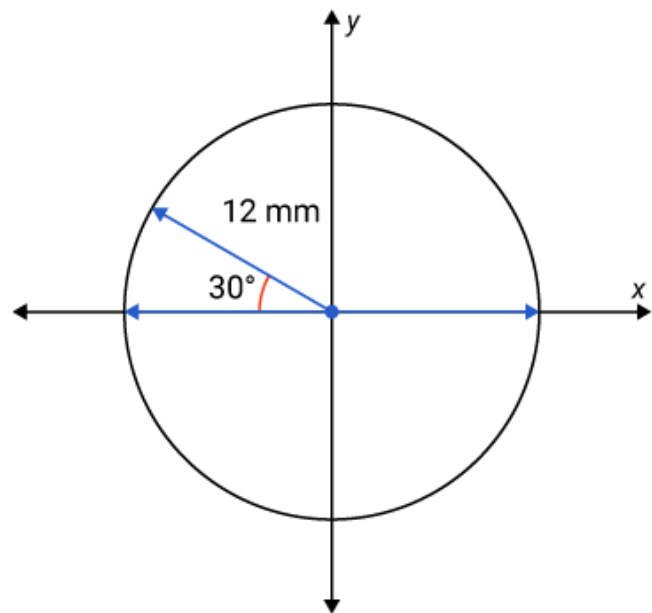

QUESTION 5



Drag and drop the correct answer into the space(s) provided.

The hand on a stopwatch has a radius of 12 millimeters. When the stopwatch is stopped, the angle formed with the horizontal is 30° . What are the coordinates of the end of the hand? Assume that the center of the stopwatch has coordinates $(0, 0)$

Find the exact coordinates of the end of the hand.



The coordinates of the end of the hand are $(-6\sqrt{3}, 6)$ ✓

$(6, -6\sqrt{3})$

$(6\sqrt{3}, -6)$

$(-12\sqrt{3}, 12)$

QUESTION 6



Drag and drop the correct answer into the space(s) provided.

Let

$$\sin \theta = \frac{12}{37}$$

, where

θ

is in Quadrant II. Determine the exact values of the 5 remaining trigonometric functions of

θ

.

$$\cos \theta =$$

$$-\frac{35}{37}$$


$$\tan \theta =$$

$$-\frac{12}{35}$$


$$\sec \theta =$$

$$-\frac{37}{35}$$


$$\csc \theta =$$

$$\frac{37}{12}$$


$$\cot \theta =$$

$$-\frac{35}{12}$$


QUESTION 7



Choose the correct answer from the drop-down menu.

Let

$$\cos \theta = \frac{8}{17}$$

, where

θ

is in Quadrant IV. Find the exact values of the 5 remaining trigonometric functions of

θ

.

$\sin \theta =$

$$-\frac{15}{17}$$



$\tan \theta =$

$$-\frac{15}{8}$$



$\sec \theta =$

$$\frac{17}{8} \quad \checkmark \quad \blacktriangledown$$

$\csc \theta =$

$$-\frac{17}{15} \quad \checkmark \quad \blacktriangledown$$

$\cot \theta =$

$$-\frac{8}{15} \quad \checkmark \quad \blacktriangledown$$

QUESTION 8



Choose the correct answer from the drop-down menu.

Let

$$\sin \theta = -\frac{4}{5}$$

, where

θ

is in Quadrant III.

A point on the terminal side of

θ

is $(-3, -4) \quad \checkmark \quad \blacktriangledown$.

QUESTION 9



Choose the correct answer from the drop-down menu.

Let

$$\tan \theta = -\frac{2}{9}$$

, where

$$\sin \theta < 0$$

. Find the exact values of the 5 remaining trigonometric functions of θ

.

$$\cos \theta =$$

$$\frac{9\sqrt{85}}{85}$$
✓
▼

$$\sin \theta =$$

$$-\frac{2\sqrt{85}}{85}$$
✓
▼

$$\sec \theta =$$

$$\frac{\sqrt{85}}{9}$$
✓
▼

$$\csc \theta =$$

$$-\frac{\sqrt{85}}{2} \quad \checkmark \quad \blacktriangledown$$

$\cot \theta =$

$$-\frac{9}{2} \quad \checkmark \quad \blacktriangledown$$

QUESTION 10



Choose the correct answer from the drop-down menu.

Let

$$\tan \theta = -\frac{4}{5}$$

, where

$$\cos \theta < 0$$

.

A point on the terminal side of

θ

is $(-5, 4) \quad \checkmark \quad \blacktriangledown$.

QUESTION 11



Choose the correct answer from the drop-down menu.

Let

$$\tan \theta = \frac{7}{3}$$

, where

$$\cos \theta < 0$$

.

A point on the terminal side of θ

is ✓ ▼

QUESTION 12



Choose the correct answer from the drop-down menu.

An observation wheel has an 82-meter diameter. The cars on the wheel rotate clockwise. One car is moving up and is 45° below where it would be if it were horizontal.

What are the coordinates of the car?

Assume that the center of the wheel has coordinates

$$(0, 0)$$

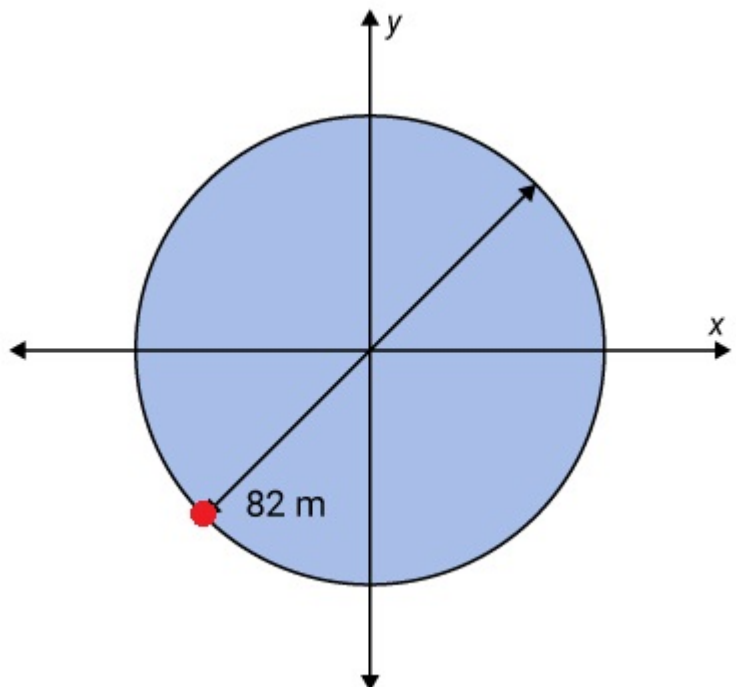
.

Find the exact coordinates of the car on the observation wheel.

$$\cos \theta$$

✓ ▼ 0 and

$$\sin \theta$$



< ✓ ▼ 0

The coordinates of the car on the observation wheel are

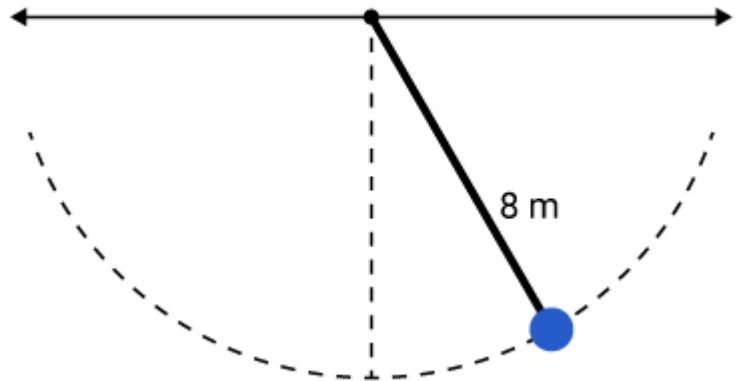
$\left(-\frac{41\sqrt{2}}{2}, -\frac{41\sqrt{2}}{2}\right)$ ✓ ▼

QUESTION 13



Choose the correct answer from the drop-down menu.

An 8-meter long pendulum swings to the right to reach its highest point. The angle of the pendulum is 60° below where it would be if it were horizontal. What are the coordinates of the end of the pendulum? Assume that the pivot point has coordinates $(0, 0)$.



Determine the exact coordinates of the end of the pendulum.

$\cos \theta$

> ✓ ▼ 0 and

$\sin \theta$

< ✓ ▼ 0.

The coordinates of the end of the pendulum are

$(4, -4\sqrt{3})$ ✓ ▼

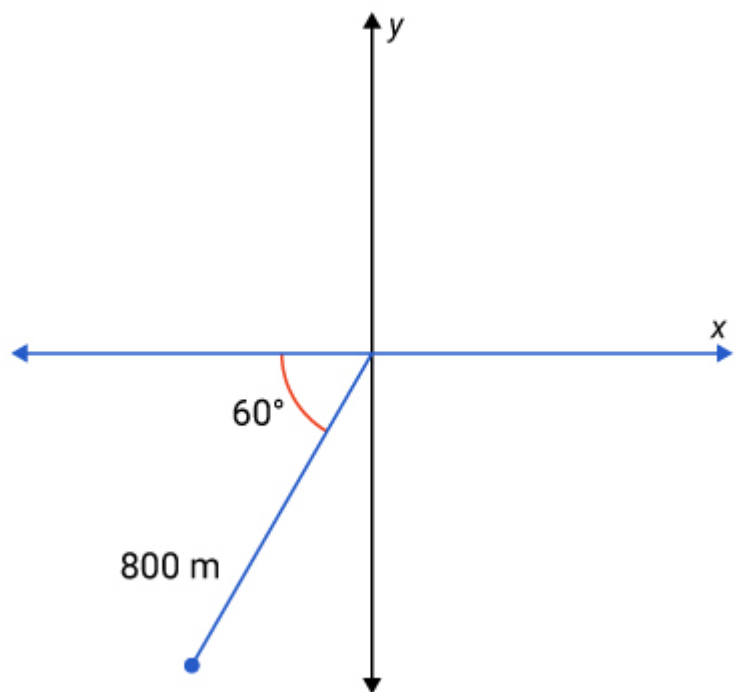
QUESTION 14



Select the correct option.

A hiker is looking at a map to find the location of a cabin. The cabin is 800 meters from the hiker. The position of the cabin forms an angle with the horizontal that is 60° . Let the position of the hiker be $(0, 0)$.

Calculate the exact coordinates of the cabin.



☐ $(-400\sqrt{3}, -400)$

☒ $(-400, -400\sqrt{3})$ ✓

☐ $(-800\sqrt{3}, -800)$

☐ $(-800, -800\sqrt{3})$

QUESTION 15

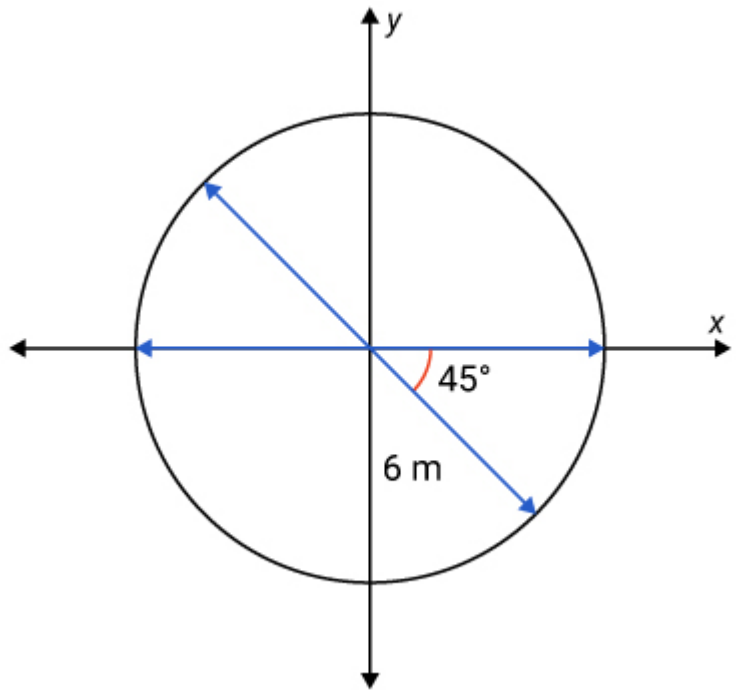


Select the correct option.

A sprinkler sprays water in a circular pattern. The diameter of the circular region is 6 meters. When the sprinkler is turned on, the spray forms an angle below the horizontal by 45° . (See figure)

Assume that the center of the sprinkler has coordinates $(0, 0)$

What are the exact coordinates of the end of the spray?


☐ $(3\sqrt{2}, -3\sqrt{2})$
☐ $(6\sqrt{2}, -6\sqrt{2})$
☐ $(-3\sqrt{2}, -3\sqrt{2})$
☒ $\left(\frac{3\sqrt{2}}{2}, -\frac{3\sqrt{2}}{2}\right)$


QUESTION 16



Drag and drop the correct answer into the space(s) provided.

Determine the exact value of

$$\cos \theta$$

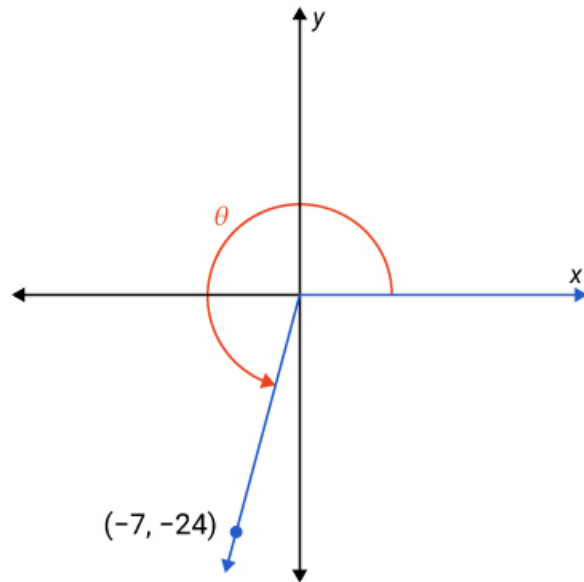
.

$\cos$

θ

=

$$-\frac{7}{25}$$



QUESTION 17



Drag and drop the correct answer into the space(s) provided.

Let

$(-15, 8)$

be a point on the terminal side of angle

θ

in standard position. Find the exact values of the 6 trig functions.

$\cos$

θ

$$= -\frac{15}{17} \quad \checkmark \quad \sin$$

 θ

$$= \frac{8}{17} \quad \checkmark \quad \tan$$

 θ

$$= -\frac{8}{15} \quad \checkmark$$

sec

 θ

$$= -\frac{17}{15} \quad \checkmark \quad \csc$$

 θ

$$= \frac{17}{8} \quad \checkmark \quad \cot$$

 θ

$$= -\frac{15}{8} \quad \checkmark$$

QUESTION 18



Drag and drop the correct answer into the space(s) provided.

Let

$(-20, 21)$

be a point on the terminal side of angle

θ

in standard position. Find the exact values of the 6 trig functions.

$\cos$

θ

$$= -\frac{20}{29} \quad \checkmark$$

$\sin$

θ

$$= \frac{21}{29} \quad \checkmark$$

$\tan$

θ

$$= -\frac{21}{20} \quad \checkmark$$

$\sec$

θ

$$= -\frac{29}{20} \quad \checkmark$$

$\csc$

θ

$$= \frac{29}{21} \quad \checkmark$$

$\cot$

θ

$$= -\frac{20}{21} \quad \checkmark$$

QUESTION 19



Drag and drop the correct answer into the space(s) provided.

What is the exact value of

$$\cos 300^\circ$$

?

$$\cos 300^\circ =$$

$$\frac{1}{2}$$



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

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

$$-\frac{\sqrt{2}}{2}$$

QUESTION 20



Drag and drop the correct answer into the space(s) provided.

Determine the exact value of

$$\sin \frac{7\pi}{6}$$

.

$$\sin \frac{7\pi}{6} =$$

$$-\frac{1}{2} \quad \checkmark$$

$$\frac{1}{2}$$

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

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

QUESTION 21



Fill in the blank(s) with the correct answer.

Find the exact value of

$$\sec 180^\circ$$

.

$$\sec 180^\circ =$$

$$-1 \quad \checkmark$$

QUESTION 22



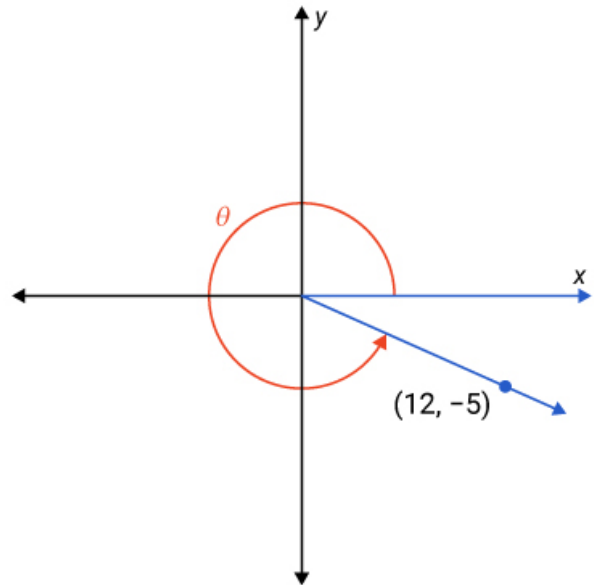
Choose the correct answer from the drop-down menu.

Find the distance of
 $P(12, -5)$
 to the origin.

$r =$

$$\sqrt{12^2 + (-5)^2} \quad \checkmark \quad \blacktriangledown =$$

$$13 \quad \checkmark \quad \blacktriangledown$$



QUESTION 23



Choose the correct answer from the drop-down menu.

What is the reference angle of

$$\frac{2\pi}{3}$$

?

The reference angle of

$$\frac{2\pi}{3}$$

is

$$\frac{\pi}{3} \quad \checkmark \quad \blacktriangledown$$

QUESTION 24



Choose the correct answer from the drop-down menu.

What is the exact value of

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

?

The angle is in Quadrant III ✓ ▼, so

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

is negative ✓ ▼.

The reference angle for

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

is

$\frac{\pi}{4}$ ✓ ▼

$$\sin \frac{5\pi}{4} =$$

$-\frac{\sqrt{2}}{2}$ ✓ ▼

QUESTION 25



Choose the correct answer from the drop-down menu.

Determine the exact value of

$$\cos 150^\circ$$

.

The angle is in Quadrant , so

$$\cos 150^\circ$$

is .

The reference angle for

$$150^\circ$$

is .

$$\cos 150^\circ =$$

QUESTION 26



Choose the correct answer from the drop-down menu.

Let

$$(-40, -9)$$

be a point on the terminal side of angle

θ

in standard position. Find the exact values of the 6 trig functions.

cos

 θ

$$= -\frac{40}{41} \quad \checkmark \quad \blacktriangledown \quad \sin$$

 θ

$$= -\frac{9}{41} \quad \checkmark \quad \blacktriangledown \quad \tan$$

 θ

$$= \frac{9}{40} \quad \checkmark \quad \blacktriangledown$$

sec

 θ

$$= -\frac{41}{40} \quad \checkmark \quad \blacktriangledown \quad \csc$$

 θ

$$= -\frac{41}{9} \quad \checkmark \quad \blacktriangledown \quad \cot$$

 θ

$$= \frac{40}{9} \quad \checkmark \quad \blacktriangledown$$



Choose the correct answer from the drop-down menu.

What is the exact value of

$\tan \pi$

?

$\tan \pi =$

0 ✓ ▼

QUESTION 28



Select the correct option.

Determine the exact value of

$\sin 270^\circ$

.

☐ 1

☒ -1 ✓

☐ undefined

☐ 0

QUESTION 29



Select the correct option.

Determine the exact value of

$$\sin \frac{7\pi}{6}$$

.

☒ $-\frac{1}{2}$ ✓

☐ $-\frac{\sqrt{3}}{2}$

☐ $\frac{1}{2}$

☐ $\frac{\sqrt{3}}{2}$

QUESTION 30



Select the correct option.

What is the exact value of

$$\sin \frac{5\pi}{3}$$

?



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



$$\frac{1}{2}$$



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



$$-\frac{1}{2}$$