

Solve the problem.

1) Given a triangle with $a = 9$, $b = 11$, $\alpha = 31^\circ$, what is (are) the possible length(s) of c ? Round your answer to two decimal places.

A) 6.61

B) 16.42 or 3.41

C) 16.42 or 2.44

D) 14.21

2) A tree casts a shadow of 26 meters when the angle of elevation of the sun is 24° . Find the height of the tree to the nearest meter.

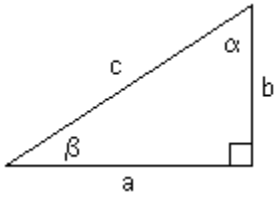
A) 12 m

B) 13 m

C) 10 m

D) 11 m

Solve the right triangle using the information given. Round answers to two decimal places, if necessary.



3) $b = 3$, $\alpha = 40^\circ$; find a , c , and β

A) $a = 2.52$

$c = 3.92$

$\beta = 50^\circ$

B) $a = 3.52$

$c = 4.92$

$\beta = 50^\circ$

C) $a = 3.52$

$c = 3.92$

$\beta = 50^\circ$

D) $a = 2.52$

$c = 4.92$

$\beta = 50^\circ$

Solve the triangle. Find the angles α and β first.

4) $a = 9$, $b = 13$, $c = 16$

A) $\alpha = 36.2^\circ$, $\beta = 52.3^\circ$, $\gamma = 91.5^\circ$

C) $\alpha = 34.2^\circ$, $\beta = 54.3^\circ$, $\gamma = 91.5^\circ$

B) $\alpha = 32.2^\circ$, $\beta = 54.3^\circ$, $\gamma = 93.5^\circ$

D) no triangle

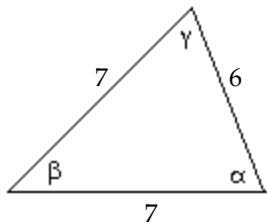
The displacement d (in meters) of an object at time t (in seconds) is given. Describe the motion of the object. What is the maximum displacement from its resting position, the time required for one oscillation, and the frequency?

5) $d = -4 \sin(3t)$

- A) simple harmonic; -4 m; 3π sec; $\frac{3}{\pi}$ oscillations/sec
- B) simple harmonic; 4 m; $\frac{3}{2\pi}$ sec; $\frac{2}{3}\pi$ oscillations/sec
- C) simple harmonic; 4 m; $\frac{2}{3}\pi$ sec; $\frac{3}{2\pi}$ oscillations/sec
- D) simple harmonic; -4 m; $\frac{2}{3}\pi$ sec; $\frac{3}{2\pi}$ oscillations/sec

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

6)



Solve the problem.

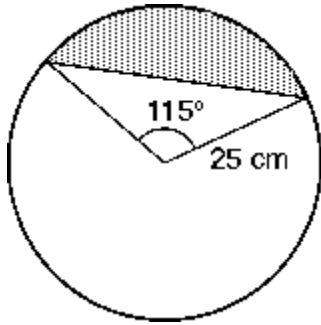
- 7) A famous golfer tees off on a long, straight 479 yard par 4 and slices his drive 10° to the right of the line from tee to the hole. If the drive went 288 yards, how many yards will the golfer's second shot have to be to reach the hole?

Solve the triangle.

- 8) $\beta = 10^\circ$, $\gamma = 20^\circ$, $b = 4$

Solve the problem.

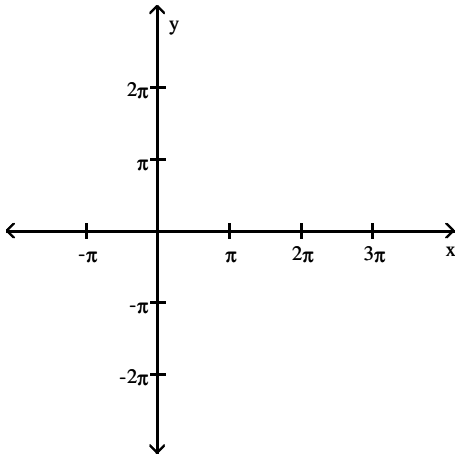
- 9) Find the area of the shaded portion (see illustration) of a circle of radius 25 cm, formed by a central angle of 115° . Round your answer to the nearest square cm.



[Hint: Subtract the area of the triangle from the area of the sector of the circle to obtain the area of the shaded portion.]

Use the method of adding y-coordinates to graph the function.

- 10) $f(x) = x - \sin x$ For full credit, you must label 4 points.



Extra Credit: Solve the Problem

- 11) A flagpole is perpendicular to the horizontal but is on a slope that rises 10° from the horizontal. The pole casts a 43-foot shadow down the slope and angle of elevation of the sun measured from the slope is 36° . How tall is the pole? Round your answer to the nearest 0.1 foot.