

Section 5.2

Name: Neal Nelson

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#1 Points possible: 1. Total attempts: 2

Convert the angle 105° to radians. Give the exact value and use **pi** for π .

$\frac{7\pi}{12}$

#2 Points possible: 1. Total attempts: 2

Convert the angle $\frac{3\pi}{4}$ from radians to degrees.

135 degrees

#3 Points possible: 1. Total attempts: 2

The angle between 0° and 360° that is coterminal with the 1671° angle is 231 degrees.

#4 Points possible: 1. Total attempts: 2

The angle between 0° and 360° that is coterminal with the -407° angle is 313 degrees.

#5 Points possible: 1. Total attempts: 2

The angle between 0 and 2π in radians that is coterminal with the angle $\frac{13}{2}\pi$ in radians is

$\pi/2$

#6 Points possible: 1. Total attempts: 2

In a circle of radius 2 miles, the length of the arc that subtends a central angle of 3 radians is 6 miles.

#7 Points possible: 1. Total attempts: 2

Find the distance along an arc on the surface of the earth that subtends a central angle of 3 minutes (1 minute = 1/60 degree). The radius of the earth is 3960 miles. Round to the thousandths. (3 decimal places)

Your answer is miles.

3.456

#8 Points possible: 1. Total attempts: 2

On a circle of radius 10 feet, what angle would subtend an arc of length 6 feet?

34.377467707849 degrees

#9 Points possible: 1. Total attempts: 2

Find the area of the sector of a circle with radius 13 miles formed by a central angle of 85° .

square miles

Round your answer to two decimal places.

125.36 square miles

#10 Points possible: 1. Total attempts: 2

A truck with 36-in.-diameter wheels is traveling at 45 mi/h.

Find the angular speed of the wheels in rad/min, *hint convert miles to inches & hours to minutes:

rad/min

How many revolutions per minute do the wheels make? rpm

2640

420.1690497626

Section 5.3**Name: Neal Nelson**[Show Scored View](#)

#1 Points possible: 1. Total attempts: 2

From the information given, find the quadrant in which the terminal point determined by t lies.

Input I, II, III, or IV.

- (a) $\sin(t) < 0$ and $\cos(t) < 0$, quadrant _____ ;
- (b) $\sin(t) > 0$ and $\cos(t) < 0$, quadrant _____ ;
- (c) $\sin(t) > 0$ and $\cos(t) > 0$, quadrant _____ ;
- (d) $\sin(t) < 0$ and $\cos(t) > 0$, quadrant _____ ;
- III _____
- II _____
- I _____
- IV _____

#2 Points possible: 1. Total attempts: 2

The point P is on the unit circle. If the y-coordinate of P is $\frac{2}{5}$, and P is in quadrant II, then

$$x = \underline{-0.74535599249993}$$

#3 Points possible: 1. Total attempts: 2

If $\cos(\theta) = -\frac{7}{8}$ and θ is in the 3rd quadrant, find $\sin(\theta)$

$$\sin(\theta) = \underline{-\frac{\sqrt{15}}{8}}$$

#4 Points possible: 1. Total attempts: 2

Without using a calculator, compute the sine and cosine of 120° by using the reference angle.(Type **sqrt(2)** for $\sqrt{2}$ and **sqrt(3)** for $\sqrt{3}$.)

What is the reference angle? _____ degrees.

In what quadrant is this angle? _____ (answer 1, 2, 3, or 4)

$$\sin(120^\circ) = \underline{\hspace{2cm}}$$

$$\cos(120^\circ) = \underline{\hspace{2cm}}$$

60

2

$$\underline{\text{sqrt}(3)/2}$$

-0.5

#5 Points possible: 1. Total attempts: 2

Without using a calculator, compute the sine and cosine of $\frac{5\pi}{4}$ by using the reference angle.(Type **sqrt(2)** for $\sqrt{2}$ and **sqrt(3)** for $\sqrt{3}$.)

What is the reference angle? _____ radians.

In what quadrant is this angle? _____ (answer 1, 2, 3, or 4)

$$\sin\left(\frac{5\pi}{4}\right) = \underline{\hspace{2cm}}$$

$$\cos\left(\frac{5\pi}{4}\right) = \underline{\hspace{2cm}}$$

pi/4

3

-sqrt(2)/2

-sqrt(2)/2

#6 Points possible: 1. Total attempts: 2

If $\theta = \frac{11\pi}{6}$, then

$\sin(\theta) = \underline{\hspace{2cm}}$

$\cos(\theta) = \underline{\hspace{2cm}}$

Give exact values. No decimals allowed!

Example: Enter $\text{sqrt}(2)/2$ for $\frac{\sqrt{2}}{2}$. With functions like sqrt , be sure to use function notation (parentheses). $\text{sqrt}(2)/2$ will work, but $\text{sqrt}2/2$ will not.

$$\frac{-1}{2} \frac{\sqrt{3}}{2}$$

#7 Points possible: 1. Total attempts: 2

If $\theta = \frac{1\pi}{3}$, then

$\sin(\theta) = \underline{\hspace{2cm}}$

$\cos(\theta) = \underline{\hspace{2cm}}$

Give exact values. No decimals allowed!

$$\frac{\sqrt{3}}{2} \frac{1}{2}$$

#8 Points possible: 1. Total attempts: 2

If $\theta = \frac{7\pi}{4}$, then

$\sin(\theta) = \underline{\hspace{2cm}}$

$\cos(\theta) = \underline{\hspace{2cm}}$

Give exact values. No decimals allowed!

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

#9 Points possible: 1. Total attempts: 2

Find an angle θ with $0^\circ < \theta < 360^\circ$ that has the same:Sine as 40° : $\theta = \underline{\hspace{2cm}}$ degreesCosine as 40° : $\theta = \underline{\hspace{2cm}}$ degrees140
320

#10 Points possible: 1. Total attempts: 2

Find an angle θ with $0^\circ < \theta < 360^\circ$ that has the same:Sine function value as 230° $\theta = \underline{\hspace{2cm}}$ degreesCosine function value as 230° $\theta = \underline{\hspace{2cm}}$ degrees310
130

#11 Points possible: 1. Total attempts: 2

Find the coordinates of a point on a circle with radius 20 corresponding to an angle of 40° $(x,y) = (\underline{\hspace{2cm}}, \underline{\hspace{2cm}})$

Round your answers to three decimal places.

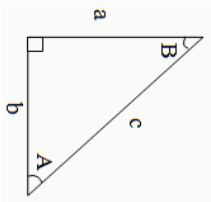
15.321
12.856

Section 5.5

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[Show Scored View](#)

#1 Points possible: 1. Total attempts: 2



Note: Triangle may not be drawn to scale.

Suppose $a = 11$ and $b = 4$.

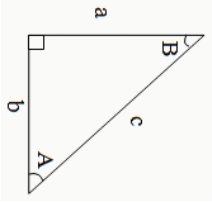
Find an exact value or give at least two decimal places:

$\sin(A) =$ _____

$\cos(A) =$ _____

$\frac{11/\sqrt{1137}}{4/\sqrt{1137}} = 0.9398()$
 $\frac{4/\sqrt{1137}}{4/\sqrt{1137}} = 0.3417()$

#2 Points possible: 1. Total attempts: 2



Note: Triangle may not be drawn to scale.

Suppose $a = 5$ and $A = 40$ degrees.

Find:

$b =$ _____

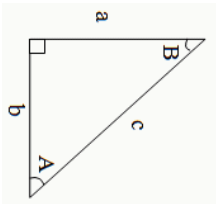
$c =$ _____

$B =$ _____ degrees

Give all answers to at least one decimal place. Give angles in **degrees**

$\frac{5.959}{7.779}$
50

#3 Points possible: 1. Total attempts: 2



Note: Triangle may not be drawn to scale.

Suppose $c = 5$ and $A = 45$ degrees.

Find:

$a =$ _____

$b =$ _____

$B =$ _____ degrees

Give all answers to at least one decimal place. Give angles in **degrees**

$5 \cdot \sqrt{2}/2 = 3.53550$
 $5 \cdot \sqrt{2}/2 = 3.53550$

45

#4 Points possible: 1. Total attempts: 2

A 35-ft ladder leans against a building so that the angle between the ground and the ladder is 80° .

How high does the ladder reach on the building? _____ ft

34.468274355427

#5 Points possible: 1. Total attempts: 2

The angle of elevation to the top of a Building in New York is found to be 6 degrees from the ground at a distance of 1 mile from the base of the building. Using this information, find the height of the building. Round to the tenths. Hint: 1 mile = 5280 feet

Your answer is _____ feet.

554.95036229277

#6 Points possible: 1. Total attempts: 2

A radio tower is located 425 feet from a building. From a window in the building, a person determines that the angle of elevation to the top of the tower is 40° and that the angle of depression to the bottom of the tower is 26° . How tall is the tower?

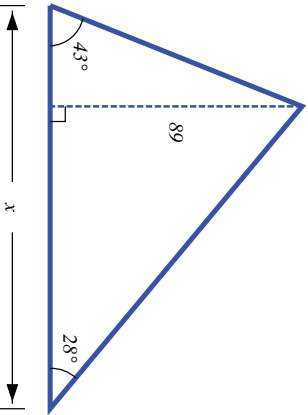
_____ feet

563.90369339084

#7 Points possible: 1. Total attempts: 2

Find x correct to 2 decimal places.

NOTE: The triangle is NOT drawn to scale.



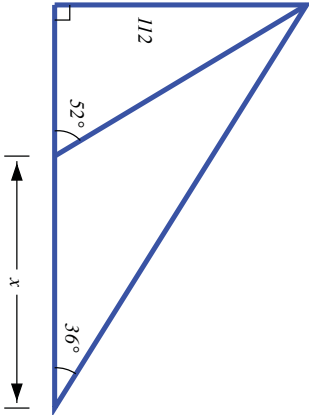
$x =$ _____

262.825

#8 Points possible: 1. Total attempts: 2

Find x correct to 2 decimal places.

NOTE: The triangle is NOT drawn to scale.



$x =$ _____

66.65