

Figure 1.17

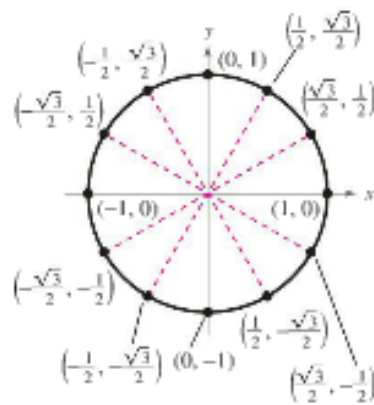


Figure 1.18

1. + -/11 points LarTrig9 1.2.607.XP.

Use a unit circle divided into 8 equal parts to complete the table for selected values of t . (If an answer is u

t	0	$\frac{\pi}{4}$	$\frac{\pi}{2}$	$\frac{3\pi}{4}$	π
x	1	$\frac{\sqrt{2}}{2}$	0	$-\frac{\sqrt{2}}{2}$	-1
y	0	$\frac{\sqrt{2}}{2}$	1	$\frac{\sqrt{2}}{2}$	0
$\sin t$	<input type="text"/>	$\frac{\sqrt{2}}{2}$	<input type="text" value="1"/>	<input type="text"/>	<input type="text"/>
$\cos t$	<input type="text"/>	$\frac{\sqrt{2}}{2}$	<input type="text" value="0"/>	<input type="text"/>	<input type="text"/>
$\tan t$	<input type="text"/>	1	<input type="text" value="∞"/>	-1	<input type="text"/>

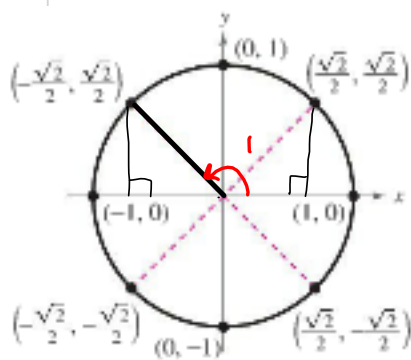


Figure 1.17

$\left(\frac{\pi}{4} \text{ rad}\right) \left(\frac{180^\circ}{\pi \text{ rad}}\right) = 45^\circ$

$\sin t = y$
 $\cos t = x$
 $\tan t = \frac{y}{x}$

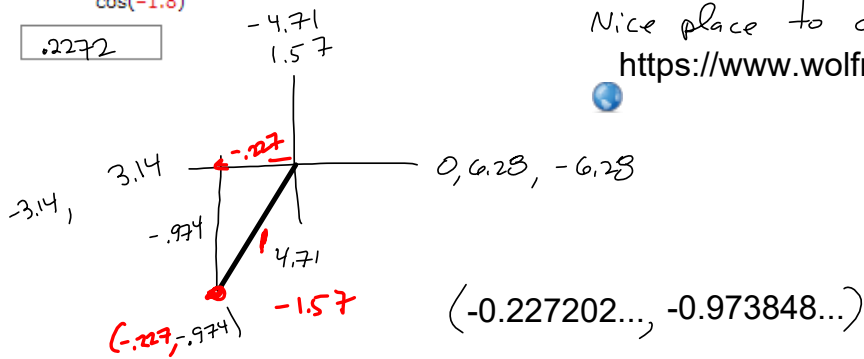
2. -1 points LarTrig9 1.2.506.XP

Use a calculator to evaluate the trigonometric expression. Round your answer to four decimal places.

$\cos(-1.8)$

Nice place to do calculations.

<https://www.wolframalpha.com/>



3.  -1 points LarTrig9 1.2.505.XP.MI.

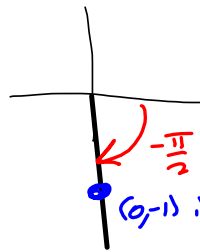
Evaluate the trigonometric function using its period as an aid.

$$\cos\left(-\frac{9\pi}{2}\right)$$

$$-\frac{9\pi}{2} = \frac{-8\pi - \pi}{2}$$


$$= -\frac{8\pi}{2} - \frac{\pi}{2}$$

$$= -4\pi - \frac{\pi}{2} \rightarrow \text{This is what you want!}$$



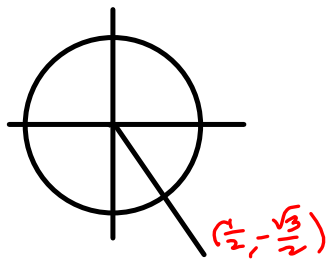
$-\frac{\pi}{2}$ is coterminal with $-\frac{9\pi}{2}$!

$(0, -1)$ is pt on unit circle

4.  -/2 points LarTrig9 1.2.504.XP.Find the point (x, y) on the unit circle that corresponds to the real number t .

$$t = \frac{5\pi}{3}$$

$$(x, y) = \left(\frac{1}{2}, -\frac{\sqrt{3}}{2} \right)$$




$$\frac{5\pi}{3} = \frac{3\pi + 2\pi}{3} = \pi + \frac{2\pi}{3}$$

$$= 180^\circ + 120^\circ$$

$$= 300^\circ$$

$$\text{or, just } \left(\frac{5\pi}{3} \right) \left(\frac{180}{\pi} \right) = 300$$



5.  -2 points LarTrig9 1.2.501.XP.Find the point (x, y) on the unit circle that corresponds to the real number t .

$$t = \pi$$

$$(x, y) = \left(\boxed{-1}, \boxed{0} \right)$$

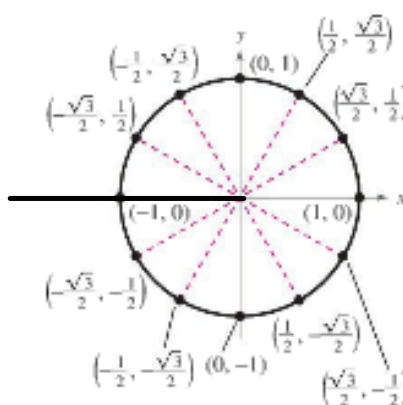



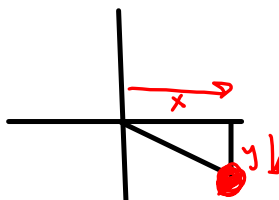
Figure 1.18

6.  -1 points LarTrig9 1.2.048.

Use a calculator to evaluate the trigonometric function. Round your answer to four decimal places. (Be sure the calculator is in the correct mode.)

cot -0.5

$$= \frac{x}{y}$$

 $-1.83049\dots$ -1.83049 

7.  -1 points LarTrig9 1.2.047.

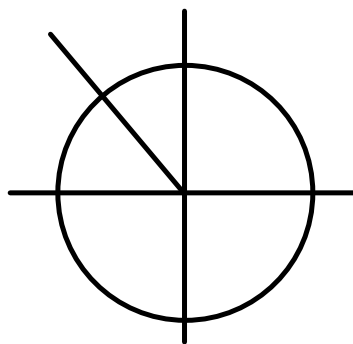
Use a calculator to evaluate the trigonometric function. Round your answer to four decimal places. (Be sure the calculator is in the correct mode.)


sec 1.9

$$\sec(1.9) = \frac{1}{\cos(1.9)}$$

-3.09320...

$$\approx \boxed{-3.0932}$$



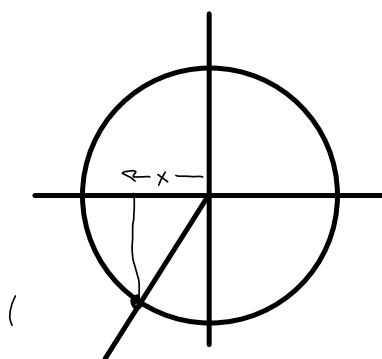
8.  -1 points LarTrig9 1.2.046.


Use a calculator to evaluate the trigonometric function. Round your answer to four decimal places. (Be sure the calculator is in the correct mode.)

$$\cos(-1.8)$$

$$-0.227202\dots$$

$$\boxed{\approx -0.2272}$$



9.  -1 points LarTrig9 1.2.045.

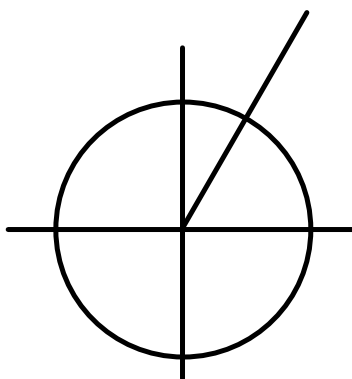
Use a calculator to evaluate the trigonometric function. Round your answer to four decimal places. (Be sure the calculator is in the correct mode.)


csc 1.4

$$\csc t = \frac{1}{\sin t}$$

1.014765...

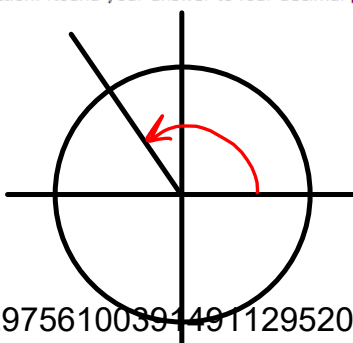
$$\approx 1.0148$$




10.  -1 points LarTrig9 1.2.044.

Use a calculator to evaluate the trigonometric function. Round your answer to four decimal places. (Be sure the calculator is in the correct mode.)

$$\csc \frac{2\pi}{3} \approx 1.5470$$
$$= \frac{1}{\sin\left(\frac{2\pi}{3}\right)}$$



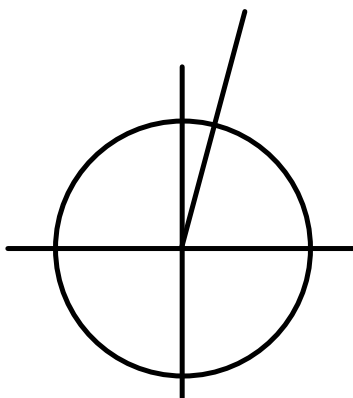
1.154700538379251529018297561003914911295203502540253752037...

11.  -1 points LarTrig9 1.2.043.

Use a calculator to evaluate the trigonometric function. Round your answer to four decimal places. (Be sure the calculator is in the correct mode.)

$$\tan 3\pi/8 \approx 1.1547$$

$$\tan t = \frac{y}{x} = \frac{\sin t}{\cos t}$$



1.154700538379251529018297561003914911295203502540253752037...

12. + -2 points LarTrig9 1.2.042.MI.

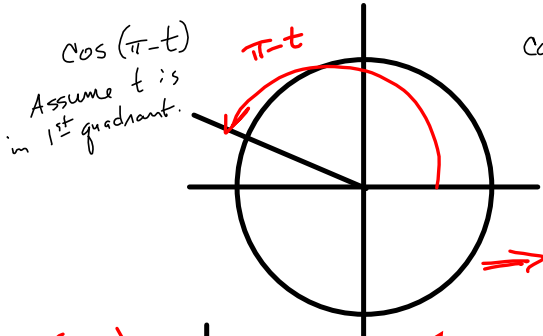
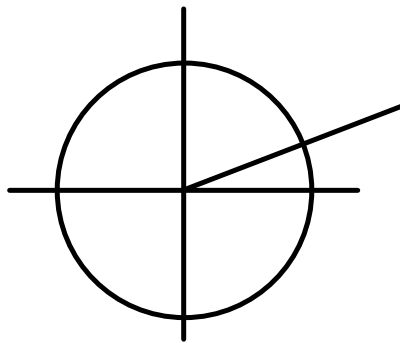
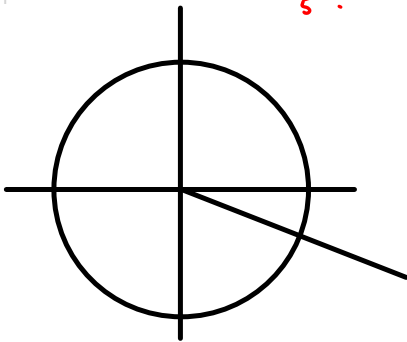
Use the value of the trigonometric function to evaluate the indicated functions.

$\cos(t) = 4/5$

(a) $\cos(\pi - t) = -\frac{4}{5}$

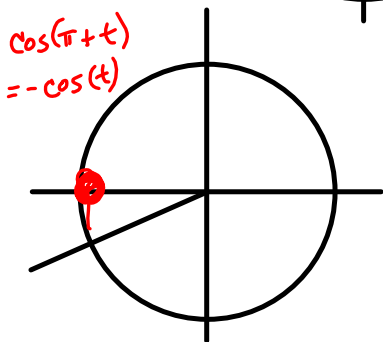
(b) $\cos(t + \pi) = -\frac{4}{5}$!

Two pictures for $\cos t = \frac{4}{5}$




$\cos(\pi - t)$
 Assume t is in 1st quadrant.

$\cos(\pi - t)$ is reflection of $\theta = t$ about y -axis. This makes x -coord negative.
 $\Rightarrow \cos(\pi - t) = -\frac{4}{5}$



$\cos(\pi + t) = -\cos(t)$

$\cos(\pi - t) = -\cos t$
 $\cos(\pi + t) = -\cos t$

13.  -2 points LarTrig9 1.2.039.

Use the value of the trigonometric function to evaluate the indicated functions.

$$\cos(-t) = -\frac{1}{9}$$

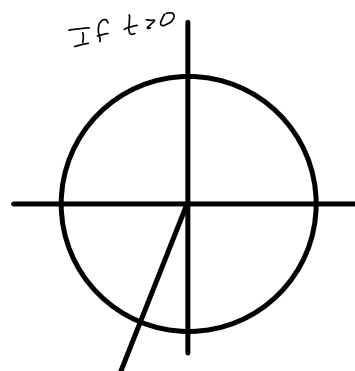
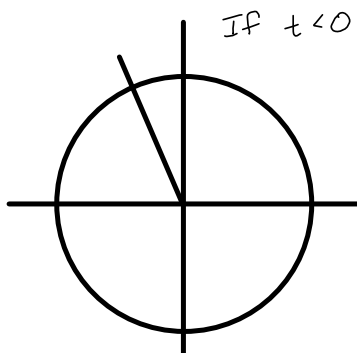
(a) $\cos(t)$
 = $-\frac{1}{9}$


(b) $\sec(-t) = \sec t = -\frac{9}{1} = -9$

cosine is an even
 function:
 $\cos(-t) = \cos t$!

$$\sec t = \frac{1}{\cos t}$$

Two pics for $\cos(t) = -\frac{1}{9}$



14.  -/2 points LarTrig9 1.2.038.MI.

Use the value of the trigonometric function to evaluate the indicated functions.

$$\sin(-t) = 8/9$$

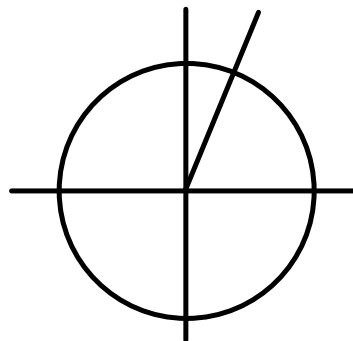
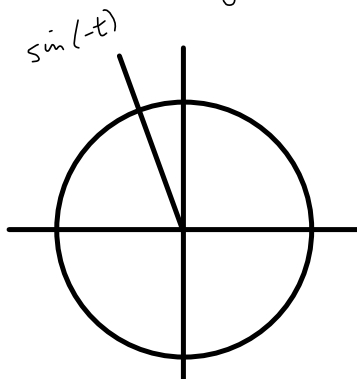
(a) $\sin(t) = -\frac{8}{9}$

(b) $\csc(t)$
 $= -\frac{9}{8}$

 $\sin t$ is odd

Replacing t by $-t$, we're flipping
across the x-axis, so y-values change
signs, i.e.,
 $\sin(-t) = -\sin(t)$!

2 pics for $\sin(-t) = \frac{8}{9}$



15. +1 points LarTrig9 1.2.036.

Evaluate the trigonometric function using its period as an aid.

$$\sin\left(-\frac{8\pi}{3}\right) = \sqrt[3]{\frac{25}{9}}$$

$$-\frac{8\pi}{3} = -\frac{6\pi}{3} - \frac{2\pi}{3}$$

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

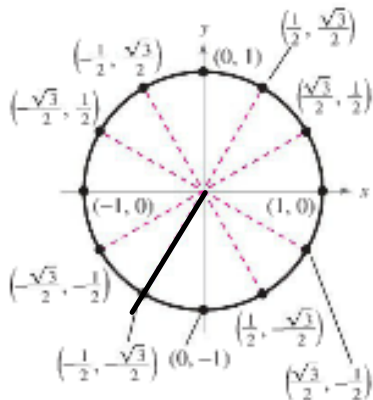
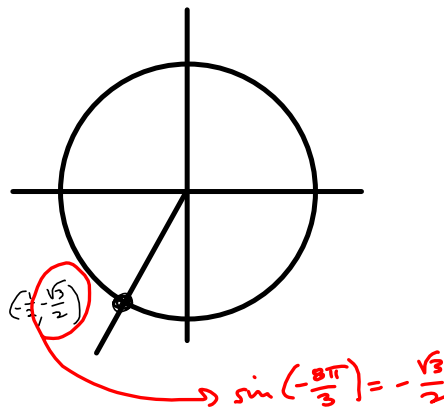



Figure 1.18



16.  -1 points LarTrig9 1.2.035.

Evaluate the trigonometric function using its period as an aid.

$$\sin\left(\frac{7\pi}{3}\right) = \frac{\sqrt{3}}{2}$$

$$\frac{7\pi}{3} = \frac{6\pi}{3} + \frac{\pi}{3} = 2\pi + \frac{\pi}{3}$$

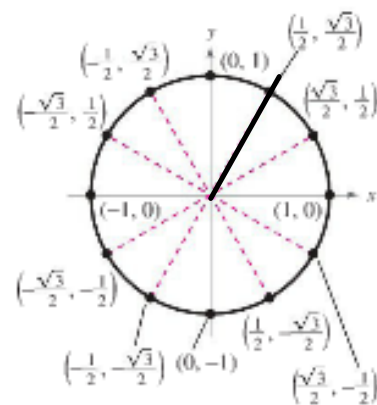
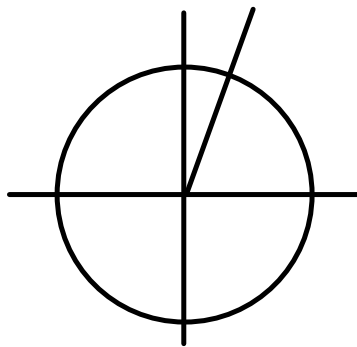



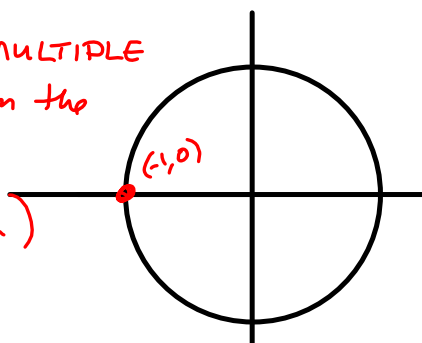
Figure 1.18

17.  -1 points LarTrig9 1.2.032.MI.

Evaluate the trigonometric function using its period as an aid.

$$\cos(15\pi) = -1$$

ODD INTEGER MULTIPLE
OF π puts us on the
negative x-axis
(Even... positive...)



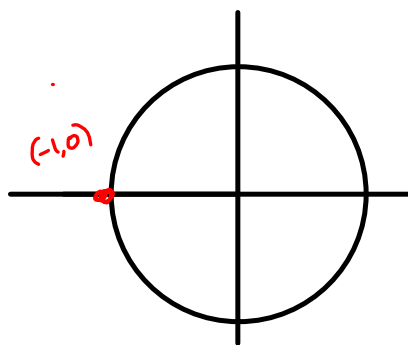
18.  -1 points LarTrig9 1.2.031.

Evaluate the trigonometric function using its period as an aid.

$$\sin(5\pi) = 0$$

$$5\pi = 4\pi + \pi$$

$$= 2(2\pi) + \pi$$



19.  -/6 points LarTrig9 1.2.030.Evaluate (if possible) the six trigonometric functions at the real number t . (If an answer is undefined, enter UNDEFINED.)

$$t = -\pi$$

sin t =

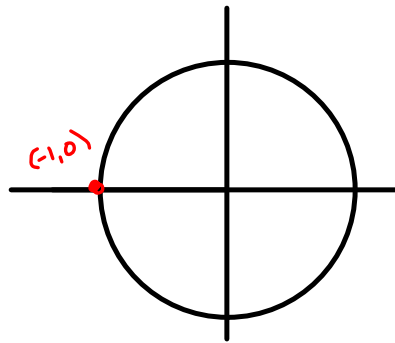
csc t = ~~1~~

cos t =

sec t =

tan t =

cot t = ~~1~~



20. -/6 points LarTrig9 1.2.028.

Evaluate (if possible) the six trigonometric functions at the real number. (If an answer is undefined, enter UNDEFINED.)

$t = \frac{11\pi}{6} = \frac{2\pi}{6} - \frac{\pi}{6} = \text{Back off } \frac{\pi}{6} \text{ from one full revolution}$

$\sin t = -\frac{1}{2}$ $\csc t = -2$
 $\cos t = \frac{\sqrt{3}}{2}$ $\sec t = \frac{2}{\sqrt{3}} = \frac{2\sqrt{3}}{3}$
 $\tan t = \frac{-\frac{1}{2}}{\frac{\sqrt{3}}{2}} = -\frac{\sqrt{3}}{3}$ $\cot t = -\sqrt{3}$

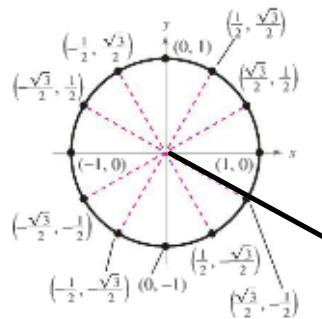
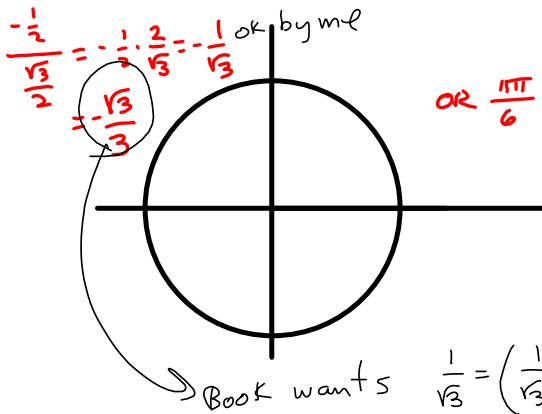


Figure 1.18



OR $\frac{11\pi}{6} = \frac{6\pi}{6} + \frac{5\pi}{6} = \pi + \frac{5\pi}{6}$

$\frac{1}{\sqrt{3}} = \left(\frac{1}{\sqrt{3}}\right)\left(\frac{\sqrt{3}}{\sqrt{3}}\right) = \frac{\sqrt{3}}{3}$ rationalizes the denominator.

21. + -/3 points LerTrig9 1.2.016.

Evaluate (if possible) the sine, cosine, and tan

$$t = -\frac{\pi}{4}$$

$$\sin t = \frac{1}{\sqrt{2}}$$

$$\cos t = \frac{\sqrt{2}}{\sqrt{2}} \text{ OR } \frac{\sqrt{2}}{\sqrt{2}}$$

$$\tan t = -1$$

$$\frac{1}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = -1$$

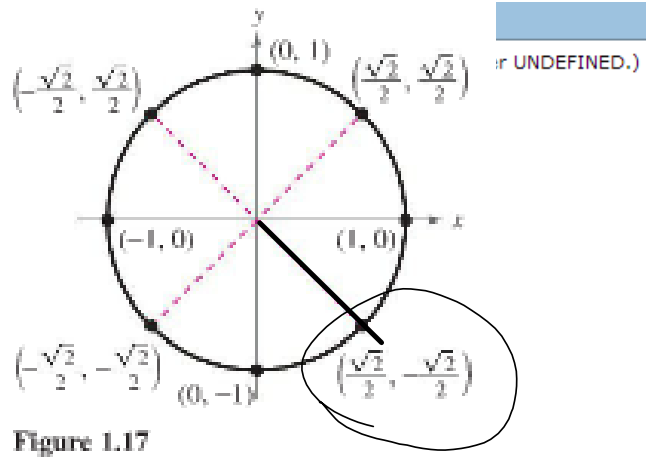
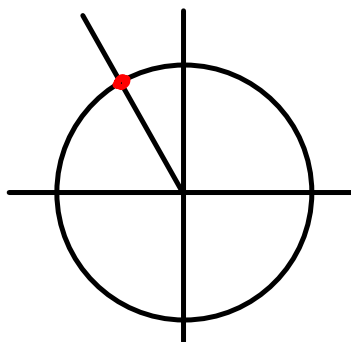


Figure 1.17

22.  -1 points LarTrig9 1.2.012.Find the point (x, y) on the unit circle that corresponds to the real number t .

$$t = 2\pi/3$$

$$(x, y) = \left(\boxed{\left(-\frac{1}{2}, \frac{\sqrt{3}}{2}\right)} \right)$$



23.  -1 points LarTrig9 1.2.010.Find the point (x, y) on the unit circle that corresponds to the real number t .

$$t = 7\pi/4$$

$$(x, y) = \left(\frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2} \right)$$

$7 \cdot \frac{\pi}{4}$ is always
a $(\frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{2})$ deal,
unless you're on x-
or y-axis.

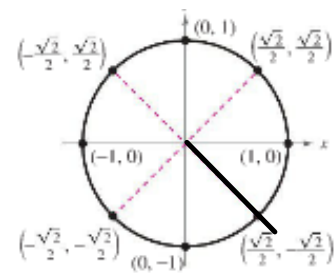
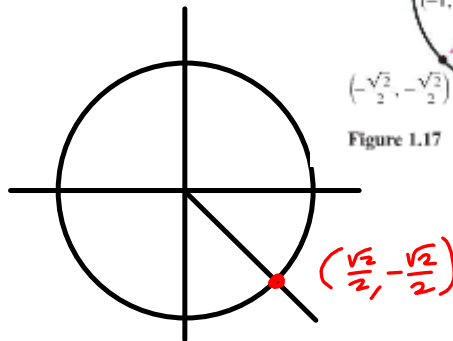

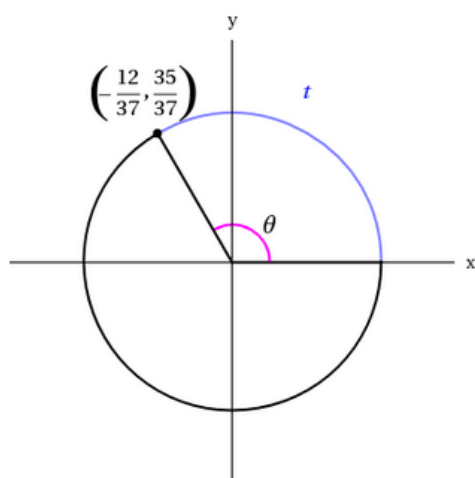


Figure 1.17

24.  -/6 points LarTrig9 1.2.006.Determine the exact values of the six trigonometric functions of the real number t .

$$\sin t = \frac{35}{37}$$

$$\csc t = \frac{37}{35}$$

$$\cos t = \frac{-12}{37}$$

$$\sec t = \frac{-37}{12}$$

$$\tan t = \frac{-35}{12}$$

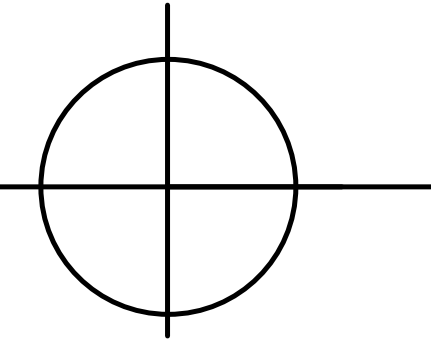
$$\cot t = \frac{-12}{35}$$


25.  -/2 points LarTrig9 1.2.004.

Fill in the blanks.

A function f is when $f(-t) = -f(t)$ and when $f(-t) = f(t)$.

$$\begin{aligned} \cos(-t) &= \cos t && \text{EVEN} \\ \sin(-t) &= -\sin t && \text{ODD} \end{aligned}$$



26.  -1 points LarTrig8 1.2.003.

Fill in the blank.

The smallest number c for which a function f is periodic is called the of f .

Period of sine & cosine is 2π

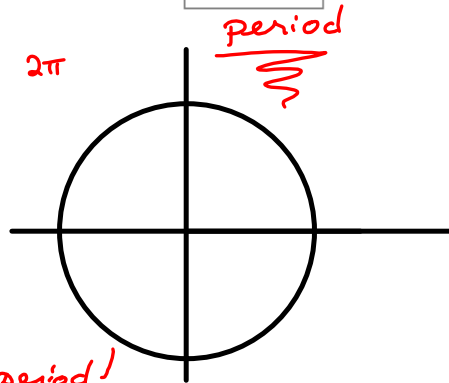
$\sin(5t)$ has period...


When does

$5t$ get to 2π ?

$$5t = 2\pi$$

$t = \frac{2\pi}{5}$ is $\sin(5t)$'s period!

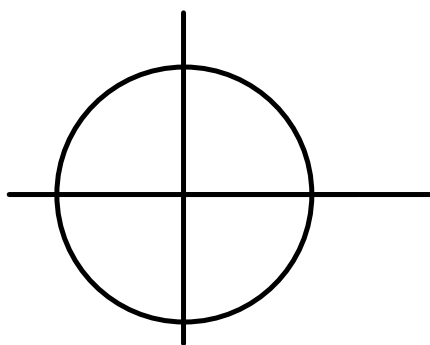



27.  -1 points LarTrig9 1.2.002.

Fill in the blank.

A function f is when there exists a positive real number c such that $f(t + c) = f(t)$ for all t in the domain of f .*periodic*

$$\sin(t + 2\pi) = \sin(t)$$



28.  -/1 points LarTrig9 1.2.001.

Fill in the blank.

Each real number t corresponds to a point (x, y) on the .
unit circle

