WeBWorK Assignment Homework07 is due : 05/21/2016 at 04:09pm EDT.

Reference: Axler, Precalculus, 2nd ed, Sections 4.1, 4.2, and 4.3

Here's the list of **functions and symbols** that WeBWorK understands.

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1. (1 pt)

On a twelve hour clock, find the angle in degrees between the hour hand and the minute hand at 10 o'clock. Your answer should be betweeen 0° and 180°.

Angle = _____ degrees.

Find the angle between the hour hand and the minute had at 10:45.

Angle = _____ degrees.

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2. (1 pt)

An angle of 7° is drawn from the center of the unit circle. What is the arc length of the intercepted arc on the circle?

Arc length = _____

An angle drawn from the center of the unit circle intercepts an arc of length 2.5. What is the angle measure in degrees? Give your answer to the nearest tenth of a degree.

Angle = _____ degrees

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3. (1 pt)

An angle of 28° is drawn from the center of a circle of radius 3. What is the arc length of the intercepted arc on the circle?

Arc length = _____

An angle drawn from the center of a circle of radius 3 intercepts an arc of length 2.4. What is the angle measure in degrees? Give your answer to the nearest tenth of a degree.

Angle = _____ degrees

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4. (1 pt) Starting from a longitude of 120°, you travel east along the equator to a longitude of 148°. How far do you travel? The radius of the earth is 3959 miles.

Distance traveled = _____ miles

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5. (1 pt) Find the length of an arc on a circle of radius 2 corresponding to an angle of $\left(\frac{135}{\pi}\right)^\circ$.

Arc length = _____ units. (Give an exact answer as a fraction, not a decimal approximation.)

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6. (1 pt) How far does the tip of the minute hand of a clock move in 25 minutes if the hand is 8 inches long?

_____ (include units in your answer:)

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7. (1 pt) You have just been served a 39° slice of a 14 inch diameter pizza. What is its area?

Area=_____ square inches

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8. (1 pt) What is the length of an arc cut off by an angle of 1.5 radians on a circle of radius 9 inches?

_____ (include units:)

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9. (1 pt) Convert each of the following degree measurements to radians. In each case, your answer should be a fracion times π. Decimal answers will not be accepted.

Degree measure	Radian measure
-30°	___$\times\pi$
120°	___$\times\pi$
45°	___$\times\pi$
30°	___$\times\pi$
-135°	___$\times\pi$
-240°	___$\times\pi$

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10. (1 pt) Convert each of the following radian measurements to degrees. In each case, your answer should be an integer (whole number).

Radian measure	Degree measure
$\frac{4\pi}{3}$	___degrees
$\frac{-7\pi}{4}$	___degrees
$\frac{7\pi}{4}$	___degrees
$\frac{-\pi}{6}$	___degrees
$\frac{-4\pi}{3}$	___degrees
$\frac{11\pi}{6}$	___degrees

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11. (1 pt) For each angle below (in radians), enter the end point of the corresponding radius of the unit circle.

Angle	End point
$\frac{\pi}{3}$	_____
$\frac{\pi}{6}$	_____
$\frac{7\pi}{4}$	_____
$-\frac{7\pi}{4}$	_____
$-\frac{7\pi}{6}$	_____
$-\frac{4\pi}{3}$	_____

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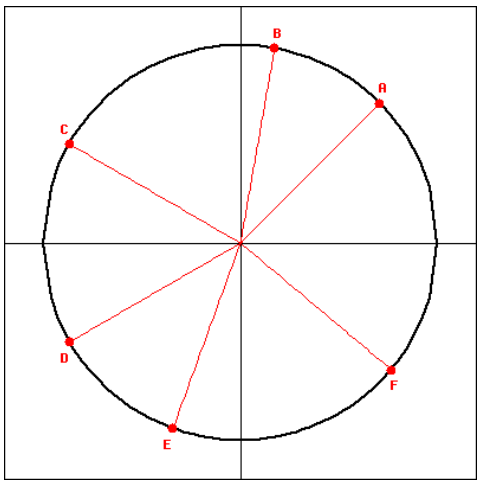
12. (1 pt) For each angle listed in the table below, select the letter of the corresponding point on the **unit circle**, the value of the *x*-coordinate of the point, and the value of the *y*-coordinate of the point. **Round the coordinates of the point to 3 decimal places. Don't enter sin or cos. (You must approximate your answers.)**

Angle	Point	x-coordinate	y-coordinate
250°	?	_____	_____
-150°	?	_____	_____
150°	?	_____	_____
800°	?	_____	_____
45°	?	_____	_____
-400°	?	_____	_____



(Click on graph to enlarge)

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13. (1 pt) Find the coordinates of the point P at an angle of $-140°$ on a circle of radius 2.9. Round your answers to the three decimal places. Enter a point as (a,b) including parentheses.

The point P is _____

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14. (1 pt) (a) Find another angle θ between $0°$ and $360°$ that has the same cosine as $240°$. (That is, find θ satisfying $\cos(\theta) = \cos(240°)$.)

$\theta =$ _____ degrees.

(b) Find another angle θ between $0°$ and $360°$ that has the same sine as $240°$. (That is, find θ satisfying $\sin(\theta) = \sin(240°)$.)

$\theta =$ _____ degrees.

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15. (1 pt)

Let θ be an angle in the first quadrant, and suppose $\sin(\theta) = a$. Evaluate the following expressions in terms of a. For example, $\sin(\theta + 180°) = -a$. *Your answers will be expressions that involve the letter a. Sketch a picture of the angles to help.*

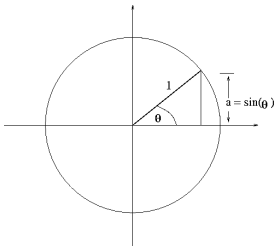
(a) $\sin(\theta + 360°) =$ _____

(b) $\cos(90° - \theta) =$ _____

(c) $\sin(180° - \theta) =$ _____

(d) $\sin(360° - \theta) =$ _____

(e) $\cos(270° - \theta) =$ _____



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16. (1 pt) Without the aid of a calculator, enter enter the numerical values of $\cos\theta$ and $\cos\theta$ for each angle θ. The angles are given in radians.

θ	$\cos\theta$	$\sin\theta$
$\frac{-1\pi}{6}$	_____	_____
$\frac{4\pi}{3}$	_____	_____
$\frac{-19\pi}{4}$	_____	_____
$\frac{28\pi}{3}$	_____	_____
$\frac{11\pi}{6}$	_____	_____
$\frac{5\pi}{4}$	_____	_____

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17. (1 pt) Without the aid of a calculator, enter enter the numerical values of $\cos\theta$ and $\cos\theta$ for each angle θ. The angles are given in degrees.

θ	$\cos\theta$	$\sin\theta$
$210°$	_____	_____
$45°$	_____	_____
$570°$	_____	_____
$765°$	_____	_____
$-120°$	_____	_____
$240°$	_____	_____

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18. (1 pt) If $\sin\theta = 0.9$ and $\frac{\pi}{2} < \theta < \pi$ then

$\cos\theta =$ _____

If $\cos\theta = 0.3$ and $0 < \theta < \frac{\pi}{2}$ then

$\sin\theta =$ _____

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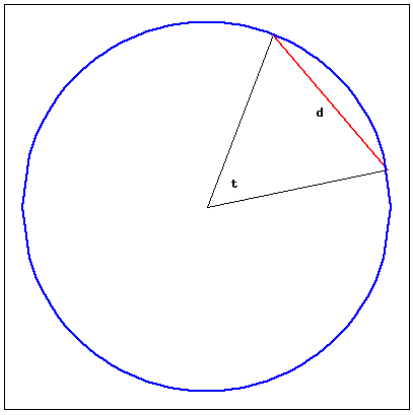
19. (1 pt)

An angle t is drawn from the center of the unit circle. Find a formula in terms of t for the straight line distance d between the points where the two radii meet the unit circle.

Hint: By rotating the picture, you may assume that one of the radii meets the circle at the point $(1,0)$.

$d(t) =$ _____



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20. (1 pt) Let θ be the acute angle formed with the positive x axis by a line with slope $\frac{1}{5}$. Find the cosine and sine of θ.

$\cos\theta =$ _____

$\sin\theta =$ _____