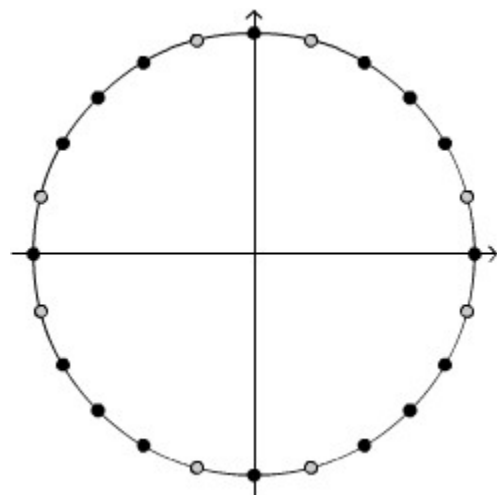
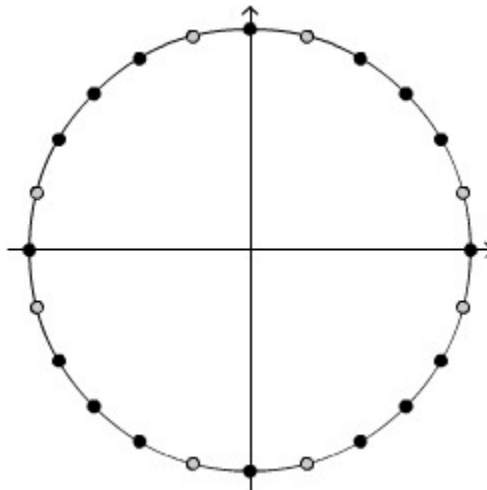


Math 122 in class review problems for test 1 (sec. 6.1 - 6.5)

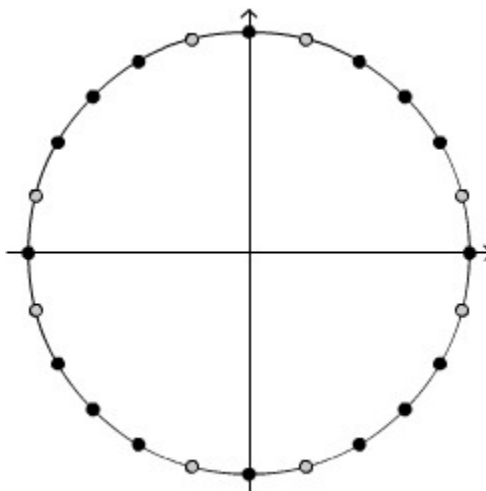
These problems are not intended to replace your homework, but instead to provide you with minimal practice on a variety of problems before you take the first exam. You should also know how to do your homework without assistance if you expect to perform well on the exam. You should be able to do these problems without any references. If you need to look something up, you need more practice before taking the exam.

1.) Fill in the circle with labels of the angles (in degrees) of the points marked with a dot. Note that some of these points are not key values, but lie halfway between key values, so you should still be able to figure those angles. Labeling the points with angle values between -360° and 360° inclusive, so you have 2 choices for most points.

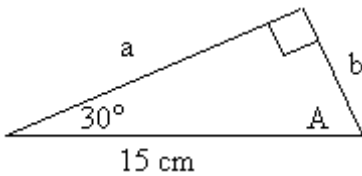


2.) Fill in the circle with labels of the angles (in radians) of the points marked with a dot. Note that some of these points are not key values, but lie halfway between key values, so you should still be able to figure those angles. Labeling the points with angles between $-2\pi^R$ and $2\pi^R$ inclusive is sufficient.

3.) Fill in the circle with labels of the coordinates that you should know exactly. Note that there are some points that you should skip, because we have not derived those values and even after we do, you are not to memorize them.



4. A windshield wiper that is 2 feet long sweeps through an angle of 157° . What is the distance traveled by the tip of the wiper?
5. Find the angle that the line $y = 3x - 4$ makes with the positive x-axis.
6. Let T be an angle in standard position that measures -150 radians. Which quadrant is the terminal side of T in?
7. Find the exact value of $\sec(-150^\circ)$.
8. Suppose $\sec \theta = 35$ and $\sin \theta > 0$. Find $\tan \theta$.
9. John is lying on top of a 250 foot building, John observes a car moving toward him. If the angle of depression to the car changes from 23° to 37° during the observation, how far does the car travel during John's observation?
10. Find all solutions in $[-\pi, \pi]$ of $\sin t = 0.46$.
11. If $\cos x = \frac{\sqrt{15}}{4}$ is in the 4th quadrant, what is the exact value of $\sin x$?
12. Find all unknowns in the following right triangle exactly.



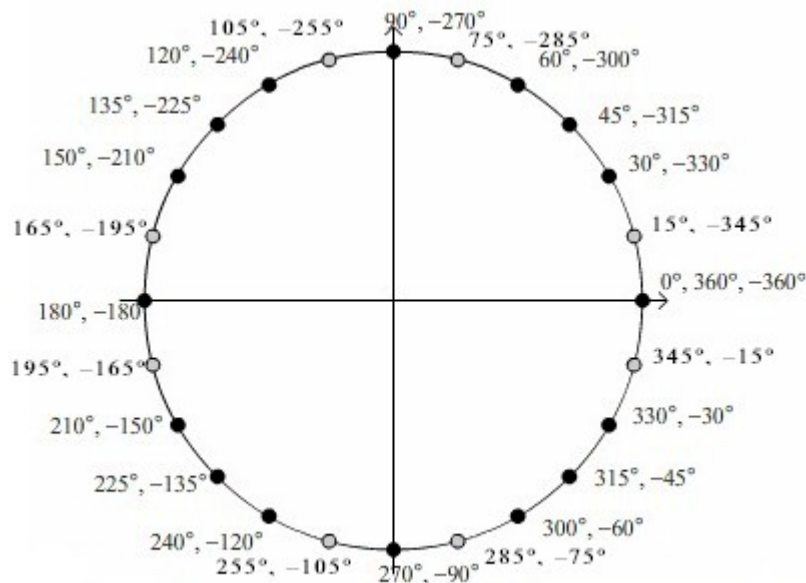
13. Solve $\cos x = -3/5$ for $x \in [0, 2\pi)$
14. Determine the length of the radius of a circle with arclength 20 cm subtended by a central angle of measure 122° .
15. If the sun is 45° above the horizon and casts a 60 ft shadow from a flagpole, how tall is the flagpole?
16. Find the speed of a bug with respect to the ground, where the bug is sitting on the edge of a 10 inch (in diameter) disk that is spinning at a rate of 15 revolutions per minute.
17. Find the exact values of all the trig functions of θ if θ is in standard position and the terminal side of θ is along the line $4y + 3x = 0$ in quadrant IV.
- 18.) Let $\sin t = 15/17$ and $\cos t = 8/17$. Find the exact values in fraction form of :

$\cos(\pi - t)$	$\sin(\pi - t)$	$\tan(2\pi - t)$	$\cos(2\pi - t)$
$\cos(\pi/2 - t)$	$\cot(\pi/2 - t)$	$\csc(t + \pi)$	$\sec(t + \pi)$

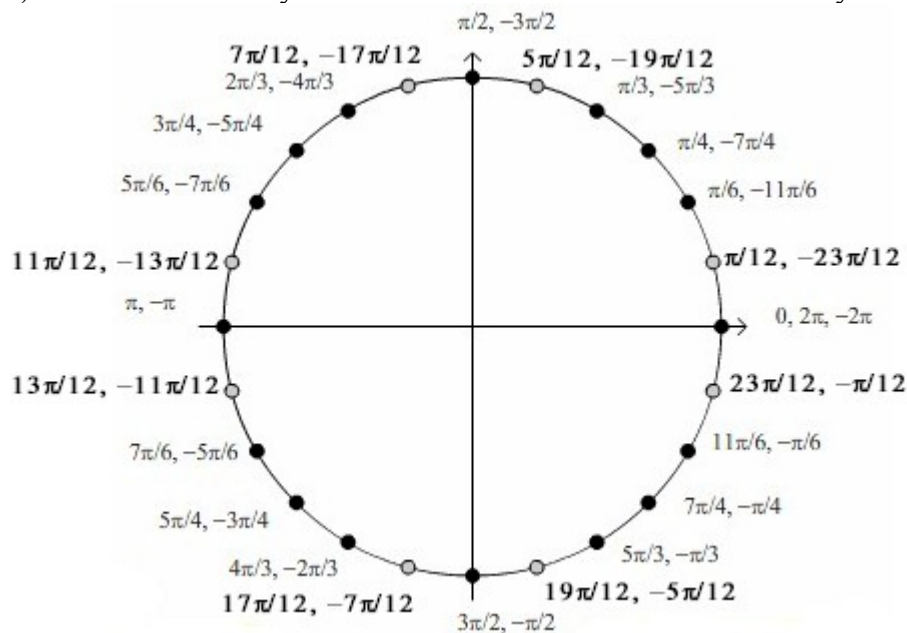
19.) Find all values of x in the interval $[-2\pi, 2\pi]$ such that $y > \frac{\sqrt{3}}{2}$ in the equation $y = \cos x$. Give exact answers.

Answers:

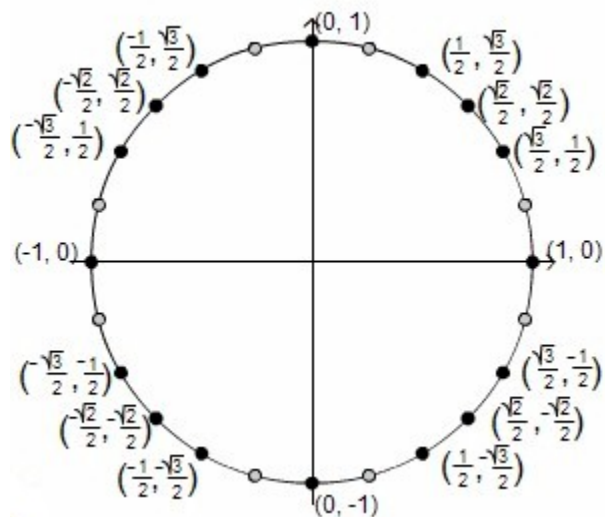
1.) Notice that the degree symbol is included on all labels since it is necessary.



2.) Notice the radian symbol is not included since it is unnecessary.



3.)



4.) 5.48 ft 5.) 71.6° 6.) I

7.) $\frac{-2}{\sqrt{3}}$ 8.) $6\sqrt{34}$

9.) 257 ft

10.) 0.4780, 2.6636

11.) -1/4

12.) $A = 60^\circ$, $a = \frac{15\sqrt{3}}{2}$, $b = 15/2$

13.) $x = 2.214, 4.069$

14.) 9.393 cm 15.) 60 ft 16.) 471.24 in/min

17.) $\cos \theta = 4/5$, $\sin \theta = -3/5$, $\tan \theta = -3/4$, $\sec \theta = 5/4$, $\csc \theta = -5/3$, $\cot \theta = -4/3$

18.) $-8/17, 15/17, -15/8, 8/17, 15/17, 15/8, -17/15, -17/8$

19.) $[-2\pi, -\frac{11\pi}{6}) \cup (-\frac{\pi}{6}, \frac{\pi}{6}) \cup (\frac{11\pi}{6}, 2\pi]$