

Mth 30, Homework 8 on sections 5.1, 5.2

Due by Wed, Apr 9.

Please use lots of space and explain your answers, showing clearly any work you had to do. Each question is worth 3 points.

Section 5.1 Angles

- (1) Draw these angles in standard position and say which quadrant the terminal side is in:

(a) 60°

(b) 150°

(c) -80°

- (2) Convert the three angles in the last question from degrees to radians. Give each answer as an exact simplified fraction involving π and also as an inexact decimal.

(Hint: multiply degrees by $\frac{\pi}{180}$ to get radians.)

- (3) Convert these radian angles to degrees:

(a) $\frac{3\pi}{2}$

(b) $\frac{\pi}{20}$

(c) $-\frac{5\pi}{6}$

- (4) Draw the angle measuring $-9\pi/4$ radians in standard position and say which quadrant the terminal side is in.

- (5) A circle has radius 9 cm.

(a) Find the length of the arc of this circle corresponding to a central angle of $\pi/6$ radians.

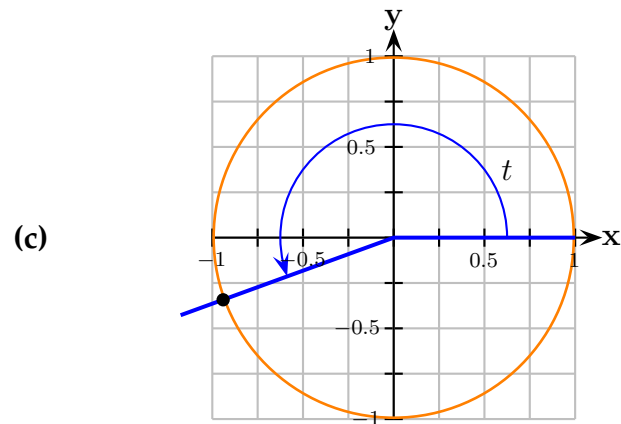
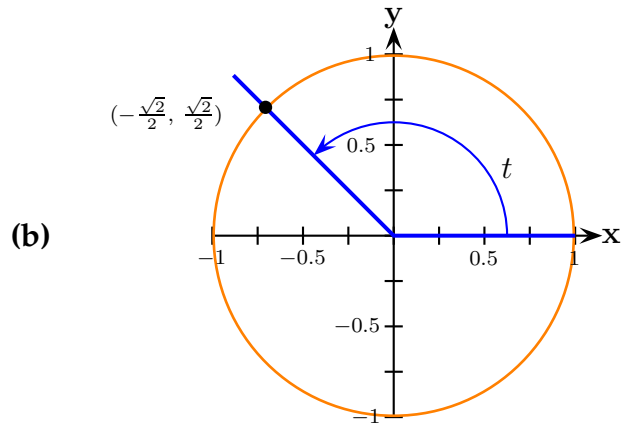
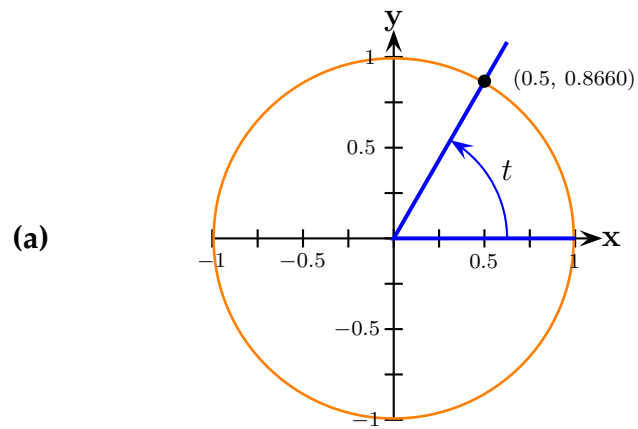
(b) Find the area of a sector of this circle corresponding to a central angle of $\pi/6$ radians.

(Hint: Use the arc length formula $s = r\theta$ and the sector area formula $A = \frac{1}{2}r^2\theta$. Make sure your answers have the correct length and area units.)

- (6) Find three different angles that are coterminal with -110° . Give your answers in degrees.

Section 5.2 Unit Circle: Sine and Cosine Functions

- (7) For each displayed angle t below, find $\cos t$ and $\sin t$. In part (c) use the picture to estimate the answers.



(8) Suppose $\cos(\theta) > 0$ and $\sin(\theta) < 0$. Which quadrant is the terminal side of this angle in?

If you get stuck on a question or aren't sure if you understand it:

- Go over the relevant class notes or section in the textbook.
- Ask me about it after class.
- Come to my office hours: Mon 2:00 - 3:00, Wed 2:00 - 3:00 in CP 317.
- Go to the Math Tutorial Lab in-person in CP 303 or online.