

SP-55 See if you can apply what you did today to answer the following questions:

- a) How many degrees are in one radian? b) How many radians are equivalent to one degree?

SP-58 Sketch a graph of $x^2 + y^2 = 11$.

- a) Is this graph a function?

- b) What are the domain and range?

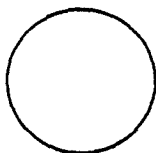
- c) In your circle, make a central angle that measures $\frac{2\pi}{3}$ radians. If you remove this wedge of the circle, what is the left-over area?

SP-62 Suppose a member of your group was absent when the class discussed radians. Write an explanation or this person:

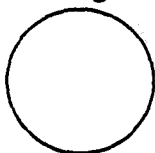
- a) of what a radian is,
 b) of how to draw a picture of a radian (that is, how to make an angle in a circle that measures 1 radian), and
 c) of why there are 2π radians in 360° .

SP-63 Each on its own unit circle, draw a picture of an angle that measures:

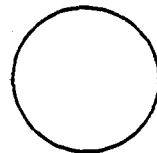
- a) 1 radian



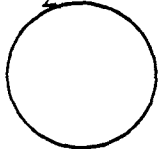
- b) 1 degree



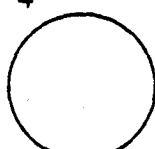
- c) π radians



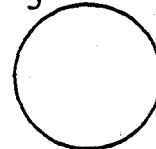
- d) $\frac{\pi}{2}$ radians



- e) $\frac{\pi}{4}$ radians



- d) $\frac{\pi}{3}$ radians



SP-64 Your calculator can "think" in degrees or radians. Figure out how to put your calculator in radian mode and back to degree mode.

- a) With the calculator in degree mode, find $\sin 60^\circ$. _____

- b) With the calculator in radian mode, find $\sin \frac{\pi}{3}$. _____

- c) You should have the same answer for both $\sin 60^\circ$ and $\sin \frac{\pi}{3}$. Why?

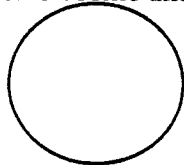
SP-65 Convert each of the following:

- a) π radians to degrees b) 540 degrees to radians c) 60 degrees to radians
- d) $\frac{\pi}{6}$ radians to degrees e) $\frac{3\pi}{2}$ radians to degrees f) 3π degrees to radians

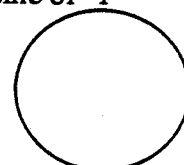
SP-69 Using separate axes, sketch $y = \sin x$ and $y = \cos x$. Draw two full cycles of each. Label the coordinates of the x-intercepts in both degrees and radians.

SP-70 In the unit circle, sketch an angle that has:

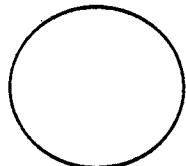
- a) a positive cosine and a negative sine



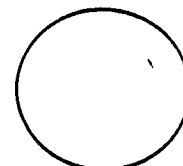
- b) a sine of -1



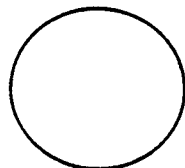
- c) a negative cosine and a negative sine



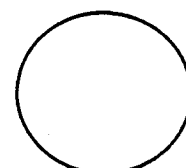
- d) a cosine of about -0.9 and a sine of about 0.3



- e) a positive tangent



- f) a cosine of 0



SP-71 Draw a picture of an angle that measures 6 radians.

- a) Approximately how many degrees is this? b) Estimate, from your picture, the sine and cosine of 6 radians.