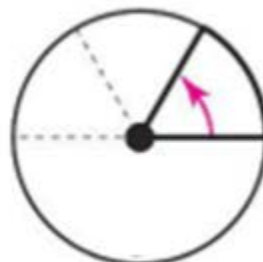
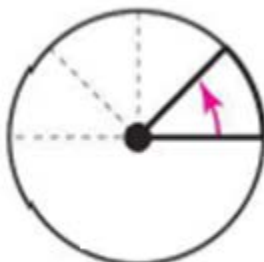
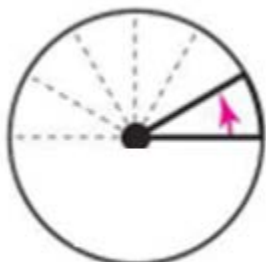
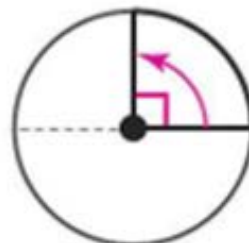
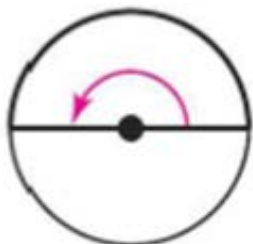


Radian Measure

A \_\_\_\_\_ is a unit of angle measure based on arc length. In a circle of radius,  $r$ , if a central angle has a measure of 1 \_\_\_\_\_, then the length of the intercepted \_\_\_\_\_ is  $r$  units.

Recall: The circumference of a circle of radius  $r$  is \_\_\_\_\_. Therefore, an angle representing one \_\_\_\_\_ rotation measures \_\_\_\_\_ radians.

Find the indicated angle measure in radians. Answers should be exact in terms of  $\pi$ .



Determine the quadrant in which each angle lies.

(1)  $\frac{5\pi}{3}$

(2)  $\frac{11\pi}{10}$

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

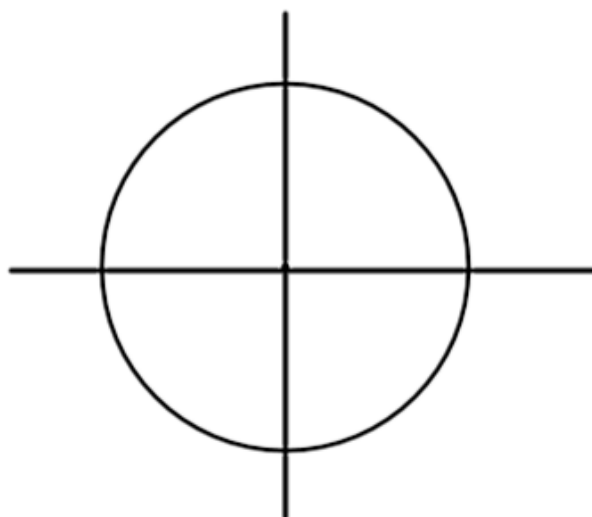
(4)  $\frac{13\pi}{6}$

(5) 3.5

(6) 1.79

(7) 5.12

(8) 7.36



## Converting Between Degrees and Radians

You can use the fact that \_\_\_\_\_ radians is equivalent to \_\_\_\_\_ to convert between radians and degrees.

Converting Angle Measures	
DEGREES TO RADIANS	RADIANS TO DEGREES
Multiply the number of degrees by $\left(\frac{\pi \text{ radians}}{180^\circ}\right)$ .	Multiply the number of radians by $\left(\frac{180^\circ}{\pi \text{ radians}}\right)$ .

### Example 1: Converting Between Degrees and Radians

Convert each measure from degrees to radians or radians to degrees.

- A.  $-60^\circ$
- B.  $\frac{2\pi}{3}$
- C.  $80^\circ$
- D.  $\frac{2\pi}{9}$
- E.  $-36^\circ$
- F.  $4\pi$

### Degrees-Minutes-Seconds(D°M'S'')

\_\_\_\_\_ Minutes = \_\_\_\_\_ Degree

\_\_\_\_\_ Seconds = \_\_\_\_\_ Minute

∴ \_\_\_\_\_ = \_\_\_\_\_

### Example 2: Converting D°M'S'' to Decimal Degree

- A.  $94^\circ 30' 30''$
- B.  $331^\circ 14' 3''$
- C.  $-112^\circ 15' 28''$

### Example 3: Converting Decimal Degree to D°M'S''

- A.  $42.35^\circ$
- B.  $-231.89^\circ$
- C.  $113.72^\circ$