

# Advanced Math

4-1

(Day 2)

## Radian and Degree Measure

Convert the measure from degrees to radians. Round to three decimal places.

$$47) 115^\circ \times \frac{2\pi}{360} = \boxed{2.007 \text{ rad}}$$

Convert the measure from radians to degrees. Round to three decimal places.

$$55) \frac{4}{7} \times \frac{360^\circ}{2\pi} = 25.714^\circ$$

Convert to decimal degree form. Add the 18 and .5 to get 18.5'

$$65) 85^\circ 18' 30'' \quad \frac{30}{60} = .5 \rightarrow \frac{18.5}{60} = .308 = \boxed{85.308^\circ}$$

60 seconds = 1 minute,  
60 minutes = 1 degree

Divide the 18.5' by 60 to get the decimal degrees.

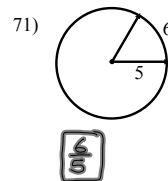
Convert to degree, minutes, and seconds form.

$$67) 2.5 \cdot \frac{360^\circ}{2\pi} = 143.2394488 \text{ DMS}$$

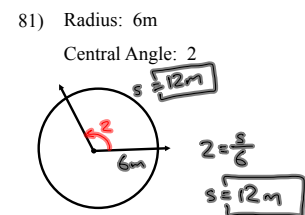
$$143^\circ 14' 36.672696''$$

$$143^\circ 14' 22.016''$$

Find the angle in radians.



Find the length of the arc on a circle of the given radius intercepted by the given angle.



91) A car is moving at a rate of 50 miles per hour, and the diameter of its wheels is 2.5 ft.

a) Find the number of revolutions per minute the wheels are rotating.

Create conversion list

$$\frac{50 \text{ mi}}{\text{hr}} \times \frac{1 \text{ hr}}{60 \text{ min}} \times \frac{5280 \text{ ft}}{1 \text{ mi}} \times \frac{1 \text{ rev}}{2.5\pi \text{ ft}} = \boxed{560.225 \frac{\text{rev}}{\text{min}}}$$

Then use conversion.

b) Find the angular speed of the wheels in radians per minute.

$$\frac{\text{rad}}{\text{time}} = 560.225 \frac{\text{rev}}{\text{min}} \times \frac{2\pi \text{ rad}}{1 \text{ rev}} = 3520 \frac{\text{rad}}{\text{min}}$$

radian is unitless.

Assignment:  
pg 368  
48-86 all,  
90, 92-96 all.