9. (a) Find the length of the arc intercepted by an angle of \(30^\circ\) on a circle of radius 50 inches.

First convert the angle to radians.
Recall \(180^\circ = \pi\) radians, hence \(1^\circ = \frac{\pi}{180}\) radians.

\[ \theta = 30^\circ = \]

Now use the formula

\[ \text{length} = \theta r = \]

Reduce the fraction, remember the units, 5 symbols, chk=10.

(b) Find the number of degrees in an angle which intercepts a 30 inch arc on a circle of radius 50 inches.

First find the angle in radians using the formula

\[ \theta = \frac{s}{r} = \]

Now convert the radian measure to degrees. 5 symbols, chk=9
Since \(180^\circ = \pi\) radians, 1 radian = \(\frac{180}{\pi}\) degrees.

10. A point rotates around a circle of radius 50 inches at 30 revolutions per second.
(a) Find its angular speed in radians per second. Give the exact answer using \(\pi\). Remember to the units, chk=6.

First convert 30 revolutions per second to radians per second.
1 revolution = \(2\pi\) radians.

Hence 30 revolutions / second = _____ \(\times\) _____ radians / second = ______ radians / second

(b) Find its linear speed. Exact answer using \(\pi\), include units.

Use the formula:
linear speed = \(\omega r\) =
Remember the units, 5 symbols, chk=3.