11.3  Sector Area and Arc Length

sector:

A region bounded by two radii of the circle and their intercepted arc

B

C

Sector ACB

segment of a circle:

A region bounded by an arc and its chord

A

B

C
Find the area of the shaded region.

\[
\frac{\pi (12)^2 \left( \frac{131}{360} \right)}{}
\]

\[A = 164.6 \text{ m}^2\]
\[ A_{\text{sector}} - A_{\text{triangle}} \]
\[ \pi(4)^2 \left( \frac{90}{360} \right) - \frac{1}{2}(4)(4) \]
\[ 12.6 - 8 \]
\[ 4.6 \text{ cm}^2 \]
Arc Length:

\[ L = 2\pi r \left( \frac{m^\circ}{360} \right) \]

the distance along an arc - measured in linear units
Find $FG$

$134^\circ$

$8$

$16\pi \left( \frac{134}{360} \right)$

$FG = 18.7$ units

$m\overarc{FG} = 134^\circ$
\[ A_{\text{sector}} = A_{\Delta} \]
\[ = \left( \frac{60}{360} \right) (36\pi) - \frac{1}{2} (6)(3\sqrt{3}) \]
\[ = 18.85 - 15.59 \]
\[ = 3.26 \]