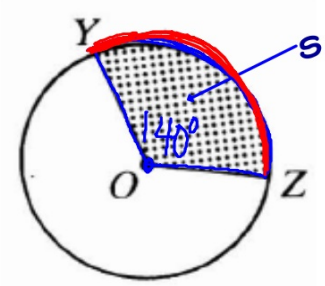
11-6 Sector Area and Arc Length

std. 10.0

March 9



sector area = $\left(\frac{\text{central } \angle YOZ}{360^\circ}\right) \cdot \pi r^2$

length of $\overset{\frown}{YZ}$ = $\left(\frac{\text{central } \angle YOZ}{360^\circ}\right) \cdot 2\pi r$

1 $r = 3$ cm, central $\angle = 140^\circ$; use $\pi \approx \frac{22}{7}$

sector area (area)

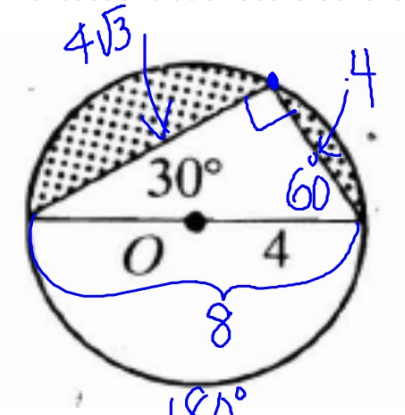
$A = \frac{140^\circ}{360^\circ} \cdot \frac{22}{7} \cdot 3^2$

$\frac{1}{18} \frac{\cancel{8}}{\cancel{36}} \cdot 22 \cdot 9 = 11 \text{ cm}^2$

arc length $= \frac{140}{360} \cdot 2 \cdot \frac{22}{7} \cdot 3$

$= \frac{\cancel{12} \cdot 22}{\cancel{36}\ 3} = 7\frac{1}{3}$ cm

(2) **Find the area of the shaded region.**



Semi ⊙ − △

$\frac{1}{2}\pi \cdot 4^2 - \frac{1}{2} \cdot 4 \cdot 4\sqrt{3}$

$\frac{1}{2}\pi \cdot 16$

$8\pi - 8\sqrt{3}$ units^2