# Area of Circles, Sectors and Arc Lengths

## *Overview of problems*

*Example Set: A*

*Find the circumference of a circle with a radius of 2 cm.*

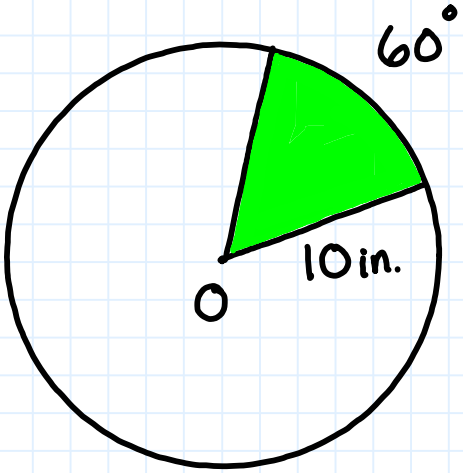
*A circle has a circumference of 26.2 inches, find the diameter.*

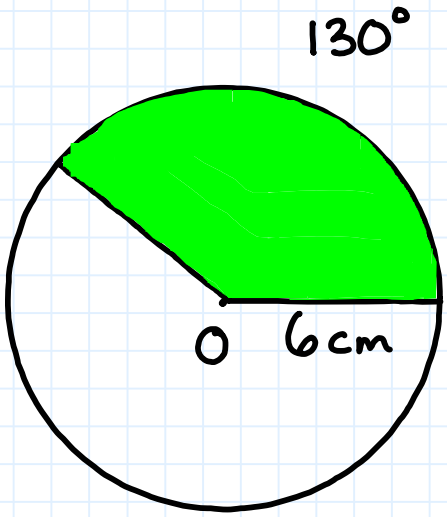
*Find the area of a circle with a radius of 7mm.*

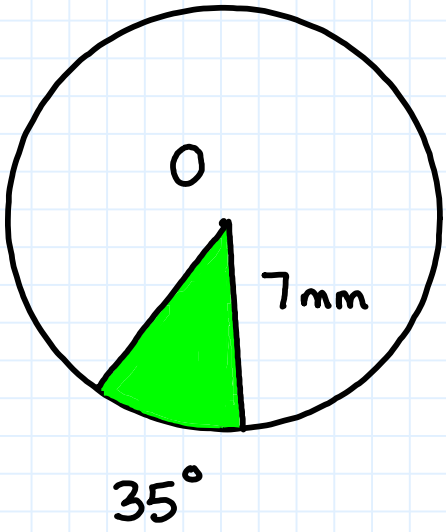
*Find the radius of a circle that has an area of 140 ftsq.*

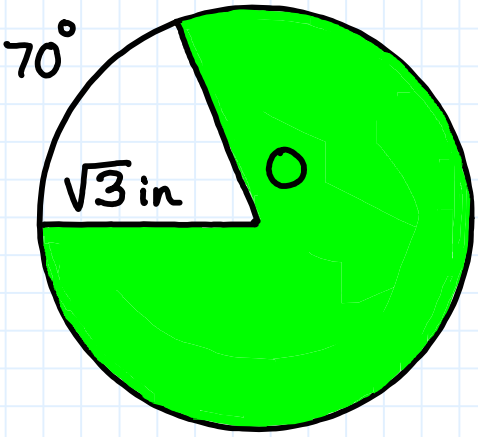
*Example Set: B*

*For each circle find the respective sector area and arc length*



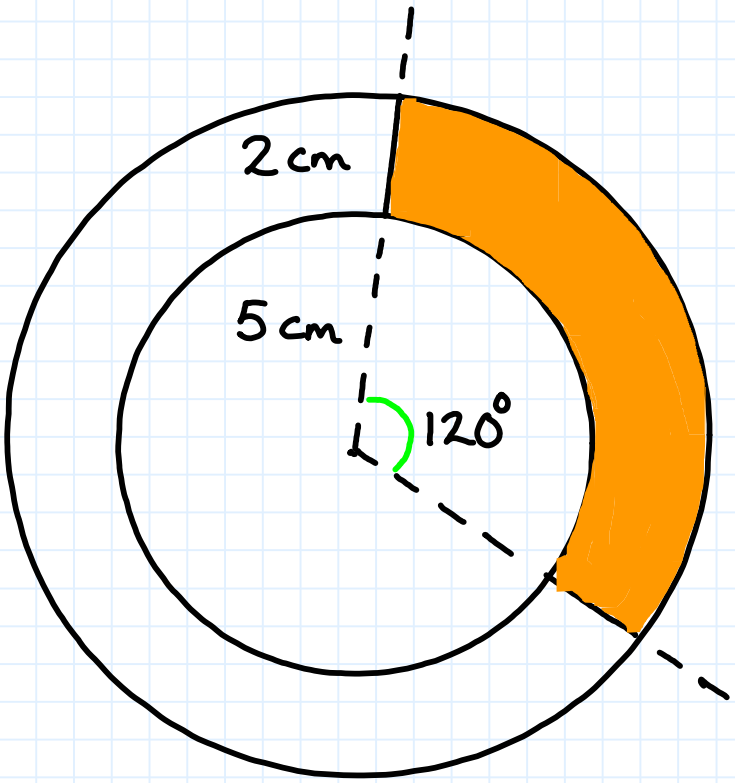



*Example Set: C*

*Find the area of the shaded region*



## *Example Set: D*

*Explore the number pi. What does the value represent? Why is pi an irrational number?*

$\pi$

# Area of Circles, Sectors and Arc Lengths

## *Overview of problems- KEY*

*Example Set: A*

*Find the circumference of a circle with a radius of 2 cm.*

$4\pi$ cm.

*A circle has a circumference of 26.2 inches, find the diameter.*

8.34 in.

*Find the area of a circle with a radius of 7mm.*

$49\pi$ $mm^2$

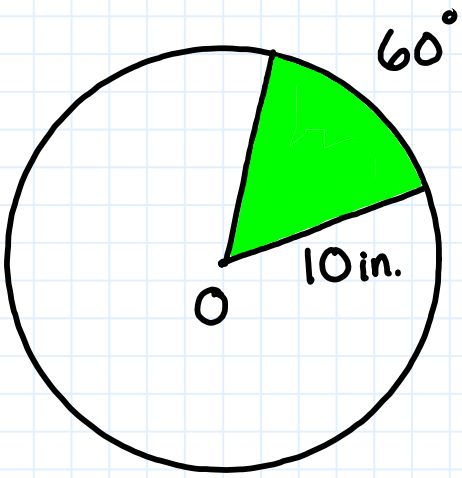
*Find the radius of a circle that has an area of 140 ftsq.*

$r = \frac{2\sqrt{35\pi}}{\pi}$ ft.

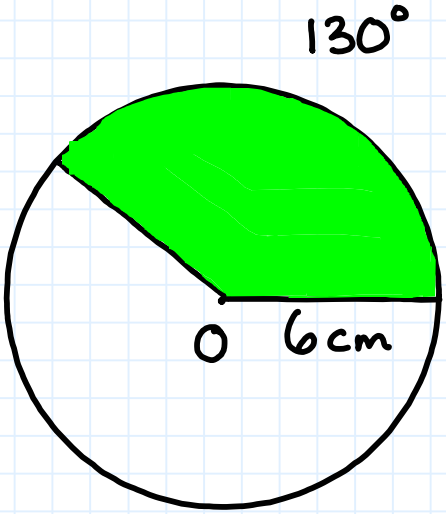
*Example Set: B*

*For each circle find the respective sector area and arc length*

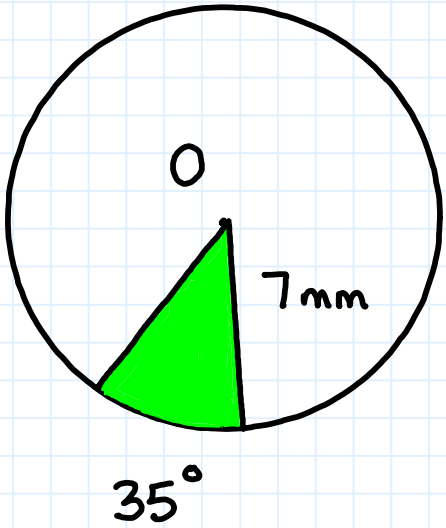
$SA = \frac{50\pi}{3}\ in^2$ $AL = \frac{10\pi}{3}\ in.$



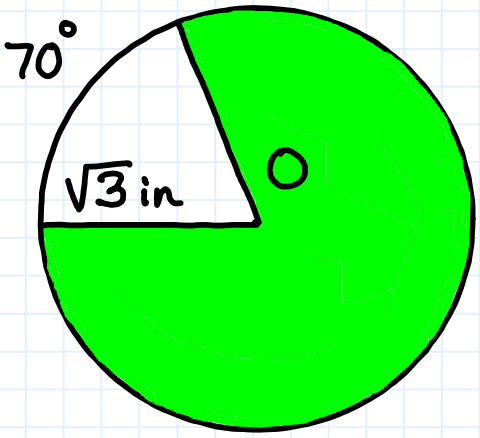

$SA = 13\pi\ cm^2$ $AL = \frac{13\pi}{3}\ cm$




$SA = \frac{343}{72}\ mm^2$ $AL = \frac{49\pi}{36}\ mm$



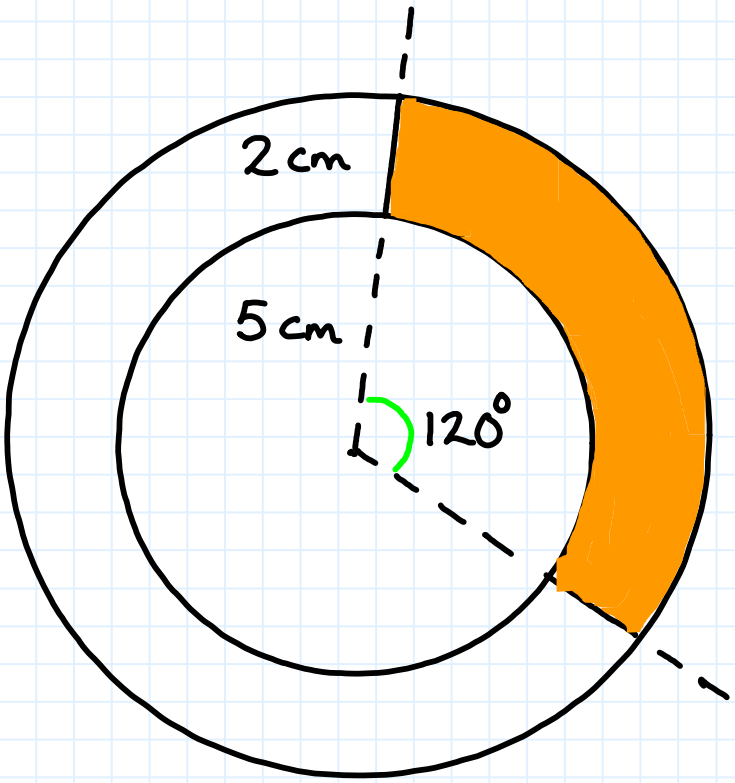

$SA = \frac{29\pi}{12}\ in^2$ $AL = \frac{29\pi\sqrt{3}}{18}$



## *Example Set: C*

*Find the area of the shaded region*

$8\pi\ cm^2$



## *Example Set: D*

*Explore the number pi. What does the value represent? Why is pi an irrational number?*

$\pi$

$\pi$ = ratio = $\frac{\text{circumference}}{\text{diameter}}$

$\pi = 3.1416\ldots$ non-terminating and can not be expressed as a fraction (rational number)

Therefore, $\pi$ is irrational