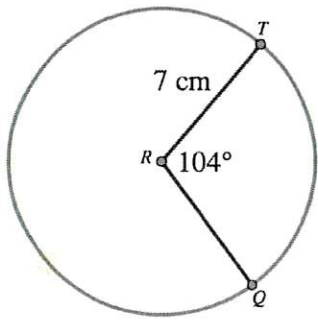


G 7-Group Test

C-Level

1) Find the arc length of \widehat{TQ} . Show all work.

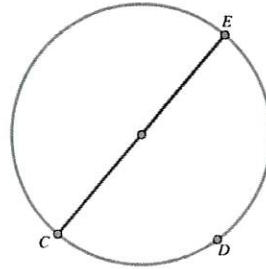


$$\left(\frac{104}{360}\right)(2\pi 7)$$

$$= 12.71 \text{ cm}$$

2) Find the arc length of \widehat{CDE} . Show all work.

$m\overline{EC} = 13.27 \text{ cm}$

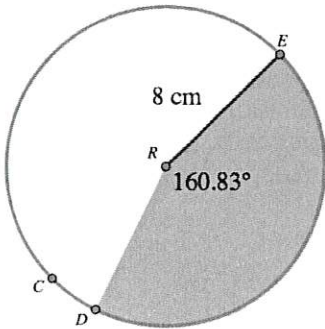


$$\frac{13.27}{2} = 6.64$$

$$\left(\frac{180}{360}\right)(2\pi 6.64)$$

$$= 20.86 \text{ cm}$$

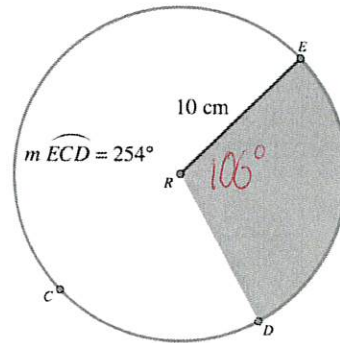
3) Find the area the shaded sector shown. Show all work.



$$\left(\frac{160.83}{360}\right)(\pi 8^2)$$

$$= 89.82 \text{ cm}^2$$

4) Find the area of the shaded sector shown. Show all work.



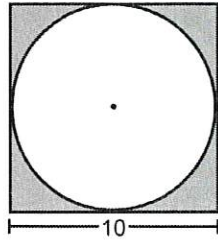
$$\begin{array}{r} 360 \\ - 254 \\ \hline 106 \end{array}$$

$$\left(\frac{106}{360}\right)(\pi 10^2)$$

$$= 92.50 \text{ cm}^2$$

B-Level

5) Find the area of the shaded region – a circle inscribed in a square with side length 10 inches: Show work for credit. (2 pts)



Area of Square =

$$(10)(10) = 100 \text{ in}^2$$

Area of Circle =

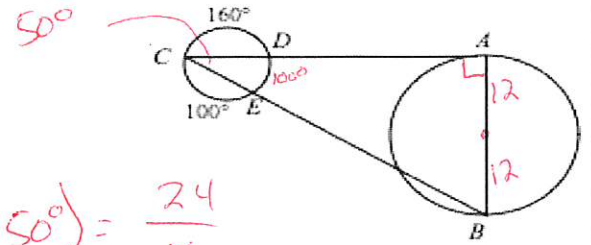
$$\pi 5^2 = 78.54 \text{ in}^2$$

$$\begin{array}{r} 100 \\ - 78.54 \\ \hline \end{array}$$

21.46 in²

A-Level

6) The radius of the large circle is 12 inches and AB is its diameter. CA is tangent to the large circle at point A. If $m\angle CDE = 160^\circ$ and $m\angle CEA = 100^\circ$, find the area of triangle ABC. Show work for credit. (2 pts)



$$\tan(50^\circ) = \frac{24}{x}$$

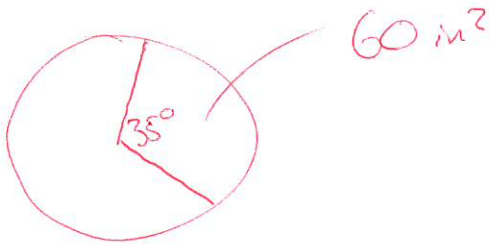
$$\frac{x \tan(50^\circ)}{\tan(50^\circ)} = \frac{24}{\tan(50^\circ)}$$

$$x = 20.14 \text{ in}$$

$$A = \frac{1}{2}(20.14)(24)$$

241.68 in²

7) A circle has a sector with an area of 60 square inches. The corresponding central angle in this sector is 35° . Draw the circle and sector, then find its radius.



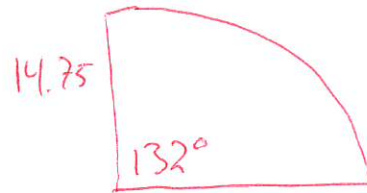
$$\left(\frac{35}{360} \right) (\pi r^2) = 60$$

$$\frac{35}{360} (\pi) \quad \frac{35}{360} (\pi)$$

$$r^2 = 196.44$$

r = 14.02 in

8) A 14.75 inch long windshield wiper blade starts at a horizontal resting position and swipes upward on a arc at an angle of 132 degrees. How many square inches of the windshield's surfaces does the blade cover on any given swipe?



$$\left(\frac{132}{360} \right) (\pi 14.75^2)$$

= 250.61 in²