## Answer on Question \#70689 - Math - Trigonometry

## Question

The diagram shows a sector of a circle of radius $r \mathrm{~cm}$ containing angle $\Theta$ radians. The area of the sector is Acm 2 and the perimeter of the sector is 50 cm .
a. Find $\theta$ in terms of $r$.
b. Show that $A=25 r-r 2$

## Solution

a.

$$
\begin{aligned}
S & =\frac{\alpha \cdot R^{2}}{2} \\
A & =\frac{\theta \cdot r^{2}}{2} \\
\theta & =\frac{2 A}{r^{2}}
\end{aligned}
$$

b.

$$
\begin{aligned}
& P=\alpha \cdot r+2 r \\
& 50=\theta \cdot r+2 r \\
& 50=\frac{2 A}{r^{2}} r+2 r \\
& 25=\frac{A}{r}+r \\
& A=25 r-r^{2}
\end{aligned}
$$

## Answer:

a. $\theta=\frac{2 \mathrm{~A}}{\mathrm{r}^{2}}$
b. $A=25 r-r^{2}$

