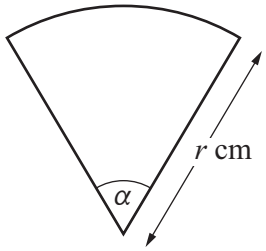
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3 **(a)** Show that $(2\tan\theta+\sec\theta)(2\tan\theta-\sec\theta) = 3\tan^2\theta - 1$. [2]

(b) Hence solve the equation $(2\tan\theta+\sec\theta)(2\tan\theta-\sec\theta) = 1$ for $0° \leqslant \theta \leqslant 180°$. [4]

4 The diagram shows a design for a logo. The logo is a sector of a circle, radius r cm, with angle α radians.



The area of the logo is $9\,\text{cm}^2$.

(a) Show that the perimeter, P cm, of the logo is given by

$$P = 2r + \frac{18}{r}.$$ [3]

(b) Given that r can vary, find the stationary value of P and determine its nature. [5]

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