**4** **(a)** Show that $\frac{1-\sin x}{\cos x}+\frac{\cos x}{1-\sin x}=2\sec x$. [3]

**(b)** Hence solve the equation $\frac{1-\sin\frac{\theta}{2}}{\cos\frac{\theta}{2}}+\frac{\cos\frac{\theta}{2}}{1-\sin\frac{\theta}{2}}=3$ for $0°\leqslant\theta\leqslant 720°$. [3]

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**5 Solutions to this question by accurate drawing will not be accepted.**

A circle has centre (4, 2) and meets the $x$-axis at $(-2, 0)$.

**(a)** Find the equation of the circle. [2]

**(b)** Find, in exact form, the coordinates of the points where the circle meets the $y$-axis. [3]