The parametric equations of a curve are

$$x = 1 - \cos \theta$$
, $y = \cos \theta - \frac{1}{4}\cos 2\theta$.

$$x = 1 - \cos \theta, \qquad y = \cos \theta - \frac{1}{4}\cos 2\theta.$$
 Show that $\frac{\mathrm{d}y}{\mathrm{d}x} = -2\sin^2(\frac{1}{2}\theta).$ [5]