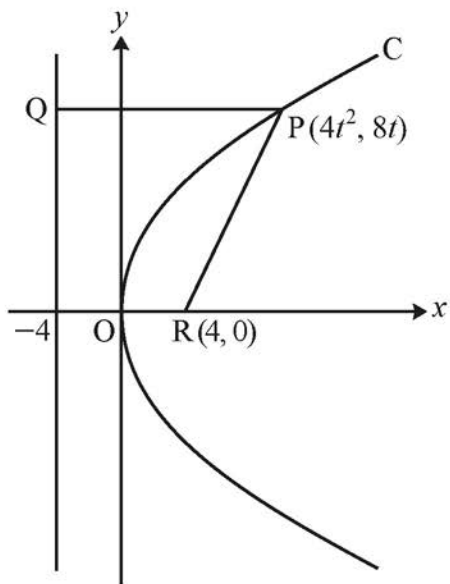12 Fig. 12 shows a curve C with parametric equations $x = 4t^2$, $y = 4t$. The point P, with parameter t, is a general point on the curve. Q is the point on the line $x + 4 = 0$ such that PQ is parallel to the x-axis. R is the point $(4, 0)$.

Fig. 12

(a) Show algebraically that P is equidistant from Q and R. **[4]**

(b) Find a cartesian equation of C. **[2]**

If you wish to use the published question paper as practice material, please make the following correction:

In the first line, cross out '$y = 4t$' and replace with '$y = 8t$'.

The sentence should now read:

Fig. 12 shows a curve C with parametric equations $x = 4t^2$, $y = 8t$.