

12. A curve C is given by the equation

$$\sin x + \cos y = 0.5 \quad -\frac{\pi}{2} \leq x < \frac{3\pi}{2}, -\pi < y < \pi$$

A point P lies on C .

The tangent to C at the point P is parallel to the x -axis.

Find the exact coordinates of all possible points P , justifying your answer.
(Solutions based entirely on graphical or numerical methods are not acceptable.)