

**3** (a) Sketch the graph of  $y = \arctan x$  where  $x$  is in radians. [2]

(b) **In this question you must show detailed reasoning.**

Find all points of intersection of the curves  $y = 3 \sin x \cos x$  and  $y = \cos^2 x$  for  $-\pi \leq x \leq \pi$ .

[6]