

**Exercise 1** Find the tangent to the curve

$$x = \tan t \quad , \quad y = \sec t$$

at the point  $P_0$  when  $t = \frac{\pi}{3}$ .

**Exercise 2** Find the length of the polar curve  $r = \sin \theta$  ,  $0 \leq \theta \leq \frac{\pi}{2}$ .