

ii Coordinates of the centre of curvature (h, k)

$$h = x_1 - r \sin \theta$$

$$k = y_1 + r \cos \theta$$

$$x_1 = \cos t + t \sin t$$

$$y_1 = \sin t - t \cos t$$

$$r = 1$$

$$\theta = t$$

$$h = \cos t + t \sin t - 1 \sin t$$

$$h = \cos t$$

$$k = \sin t - t \cos t + 1 \cos t$$

$$k = \sin t$$

$$\therefore (h, k) = (\cos t, \sin t).$$