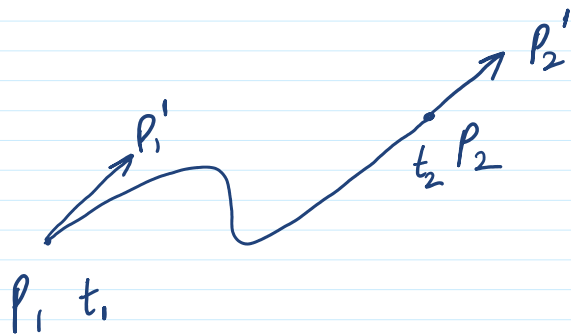


## Cubic Splines :-



Let  $t_1 = 0$

$$\begin{aligned} P(0) &= P_1 & P(t_2) &= P_2 \\ P'(0) &= P_1' & P'(t_2) &= P_2' \end{aligned}$$

$$\begin{aligned} P(t) &= \boxed{\phantom{B_1 + B_2 t + B_3 t^2 + B_4 t^3}} \\ P'(t) &= \boxed{\phantom{B_2 + 2B_3 t + 3B_4 t^2}} \end{aligned}$$

We get,

$$B_1 = \boxed{\phantom{P_1}} \quad \text{--- (1)}$$

$$B_2 = \boxed{\phantom{P_1'}} \quad \text{--- (2)}$$

$$B_1 + B_2 t_2 + B_3 t_2^2 + B_4 t_2^3 = P_2 \quad \text{--- (3)}$$

$$B_2 + 2B_3 t_2 + 3B_4 t_2^2 = P_2' \quad \text{--- (4)}$$

Solving for  $B_1, B_2, B_3$  and  $B_4$  in terms of  $P_1, P_2, P_1', P_2'$

$$P(t) = \boxed{\phantom{P_1}} + \boxed{\phantom{P_1'}} t + \boxed{\phantom{B_3 t^2 + B_4 t^3}} t^2$$

$$P(t) = \square + \square t + \square t^2$$

$$+ \square t^3$$