

YOU must write GOOD Mathematics, clearly explaining each step of your proof. Otherwise, no objection will be accepted.

1. Given three points  $\mathbf{p}_0, \mathbf{p}_1$  and  $\mathbf{p}_2$  in  $\mathbb{R}^2$ . Find the Bézier points  $\mathbf{b}_0, \mathbf{b}_1$  and  $\mathbf{b}_2$ , and  $\mathbf{x}(t)$  so that the Bézier curve  $\mathbf{x}(t)$  passes through (*interpolate*) the data points. (Hint: Set the parameter values  $t_i = i/n$ )
2. Given two points  $\mathbf{p}_0, \mathbf{p}_1$  and a tangent vector  $\mathbf{m}_0$  at  $\mathbf{p}_0$  in  $\mathbb{R}^2$ . Find the Bézier points  $\mathbf{b}_0, \mathbf{b}_1$  and  $\mathbf{b}_2$ , and  $\mathbf{x}(t)$  so that the Bézier curve  $\mathbf{x}(t)$  passes through (*interpolate*) the data points.