1. **2nd order (quadratic) Bézier curve**: Draw the Bézier curve with control points $\vec{p}_0, \vec{p}_1, \vec{p}_2$ using guiding points with $t = 0.25, 0.5, 0.75$.

![Diagram of a quadratic Bézier curve]

2. Here is the parametric equation of a quadratic Bézier curve
   \[ Q(t) = (1 - t)^2 \vec{p}_0 + 2(1 - t)t \vec{p}_1 + t^2 \vec{p}_2 \]
   Rearrange this function to make it look more like a quadratic in $t$ (i.e., $Q(t) = at^2 + bt + c$).

   (a) Take the derivative of this rearranged function with respect to $t$.

   (b) What is the derivative at $t = 0, t = 1$? What can we say about the tangents at $p_0$ and $p_2$?

3. **3rd order (cubic) Bézier curve**: Draw the Bézier curve with control points $\vec{p}_0, \vec{p}_1, \vec{p}_2, \vec{p}_3$ using guiding points with $t = 0.25, 0.5, 0.75$.

![Diagram of a cubic Bézier curve]