Exercise 1. Consider the curve $r(t) = (t, (4-t^2)^2)$ for $1 \leqslant t \leqslant 3$. Answer the following tasks:

1. What are the value $t = 1, t = 3$ and $r(1) = (1,9), r(3) = (3,1)$ called? What is the difference between them?
2. Is the point $(2,4)$ on the curve? If so, what is it's local coordinate/parameter?
3. Is the point with local coordinate $t = 0$ on the curve? There's more than one way to show this, can you mention 2 ways to do it?

Exercise 2. Consider the plane which satisfies the following:

- Passes through the origin.
- Is orthogonal to the line between the points $(4,-5,0)$ and $(2,-3,1)$.

Verify if the point $(1,1,0)$ is on the plane.