**Exercise 1.** Consider the curve  $r(t) = (t, (4-t^2)^2)$  for  $1 \le t \le 3$ . 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:

 $\bullet$  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.