Answer on Question #70821 – Math – Geometry

Question

Is γ(t) = (t^2,t^4) a parameterization of the parabola y=x^2?

Solution

Let. y=x^2.

If x = t, then

$$\begin{cases} y = t^2 \\ x = t \end{cases}, \ -\infty < t < +\infty$$

is a parameterization of the parabola y=x^2.

Hence

$$\begin{cases} y = t^4 \geq 0, \\ x = t^2 \geq 0, \end{cases}$$

is not a parameterization of the parabola y=x^2 because this parametrization does not describe the branch of parabola y=x^2 , where $x < 0$.

Answer:

(t^2,t^4) is not a parameterization of the parabola y=x^2;

(t, t^2) is a parameterization of the parabola y=x^2.