Check your understanding

1. Consider a parametrized curve $x = f(t)$, $y = g(t)$, $\alpha \leq t \leq \beta$. Define a new parametrized curve from this by $x = f(\alpha+\beta-t)$, $y = g(\alpha+\beta-t)$, $\alpha \leq t \leq \beta$. What is the difference between the old parametrized curve and the new parametrized curve?

   (a) They are the same parametrized curve.

   (b) They are the same curve in the plane, but traversed in opposite directions.

   (c) They are different curves in the plane.

Answer: (b)

Explanation: As t goes from α to β, the quantity $\alpha + \beta - t$ goes backwards from β to α. Thus the new parametrized curve gives the same points in the plane as the old parametrized curve, but in the reverse order.