

427L: curves, velocity, and acceleration

1. Find an explicit parameterization of a curve $c(t)$ such that the speed $\|v(t)\|$ tends to infinity as $t \rightarrow \infty$.
2. Find someone else in the classroom, and compute the acceleration vector $a(t) = c''(t)$ for the curve they found for question 1.
3. Find an explicit parameterization of a curve $c(t)$ in \mathbb{R}^2 such that the speed $\|v(t)\|$ is constant for $t \in [0, 1]$, but $c(t)$ is *not* a circular arc or a line segment.
4. Find someone else in the classroom, and compute the length of the curve they found for question 3 (where t varies from 0 to 1).