

$$\begin{aligned} \mathbf{r}(t) = \langle t^5 + 2, t^7, t^5 - 1 \rangle &\Rightarrow \mathbf{v}(t) = \mathbf{r}'(t) = \langle 5t^4, 7t^6, 5t^4 \rangle, \quad \mathbf{a}(t) = \\ \mathbf{v}'(t) = \langle 20t^3, 42t^5, 20t^3 \rangle, \quad |\mathbf{v}(t)| &= \sqrt{(5t^4)^2 + (7t^6)^2 + (5t^4)^2} = \sqrt{50t^8 + 49t^{12}} = \\ |t| \sqrt{50t^6 + 49t^{10}}. \end{aligned}$$