

Parametric Curves (Arc Length)*Example 1*

Find the length of the parametric curve $x = t^{3/2}$ and $y = 2t - 1$ on $[0,8]$

Example 2

A particle moves along a curve so that its position is $(x(t), y(t))$ where $x(t) = t^2 - 4t + 8$ and $\frac{dy}{dt} = te^{t-3} - 1$, where x and y are measured in meters and t is measured in seconds.

- a) Find the speed of the particle at $t = 3$.
- b) Find the total distance traveled by the particle for $0 \leq t \leq 4$ seconds.