

6. [12 points] The position of a particle at time t is given by $x = \cos(e^t)$, and $y = \cos(3e^t)$, where both x and y are measured in cm, and t is measured in seconds.
- a. [5 points] Find the exact speed of the particle at time $t = 0$. Show enough work to support your answer and include units. Calculator approximations will not receive full credit.
- b. [7 points] Use derivatives to determine the concavity of the particle's path at time $t = 0$.