proprep™

Workbook

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Questions

1) Find the distance traveled between $t=0$ and $t=\frac{\pi}{2}$ by a particle $P(x,y)$, whose position at time t is given by: $x=\cos t+t\sin t,\ \ y=\sin t-t\cos t$.

2) Find the distance traveled between $t=0$ and $t=4$ by a particle $P(x,y)$, whose position at time t is given by: $x=\frac{t^2}{2},\ \ y=\frac{1}{3}(2t+1)^{3/2}$.

3) Find the distance traveled between $t=0$ and $t=4$ by a particle $P(x,y)$, whose position at time t is given by: $x=\frac{1}{3}(2t+3)^{3/2},\ \ y=\frac{t^2}{2}+t$.

Answer Key

1) $\frac{\pi^2}{8}$

2) 12

3) 16