

Arc Length- HW Problems

Find the length of the following curves.

1. $\vec{c}(t) = \langle 4 \cos(t), 4 \sin(t), 3t \rangle;$ $0 \leq t \leq 2\pi$
2. $\vec{c}(t) = \langle \frac{4}{5} \cos(t), 1 - \sin(t), -\frac{3}{5} \cos(t) \rangle;$ $3 \leq t \leq 6$
3. $\vec{c}(t) = \langle \sin(t), \cos(t), \frac{2}{3} t^{\frac{3}{2}} \rangle;$ $0 \leq t \leq 8$
4. $\vec{c}(t) = \langle 2t + 1, \ln(t), t^2 - 1 \rangle;$ between $(3,0,0)$ and $(5, \ln(2), 3)$.
5. $\vec{c}(t) = \langle \frac{1}{3} t^3, t^2, t^2 \rangle;$ $0 \leq t \leq 2$
6. $\vec{c}(t) = \langle \cosh(t), \frac{\sqrt{2}}{2} t, \frac{\sqrt{2}}{2} t \rangle;$ $0 \leq t \leq \ln(3)$