12.1 EVEN SOLUTIONS (Solutions to odd problems are in the book)

2.

48. $\vec{r}(t) = \langle -1-2t,\ 2+3t,\ -2+3t \rangle$, $0 \le t \le 1$

13.2

34 $\theta \cong \cos^{-1}\left(\frac{1}{\sqrt{3}}\right) \cong 55°.$

42. $\vec{r}(t) = \frac{1}{2}t^2 + e^t j + (te^t - e^t)k + \vec{c}$

using $\vec{r}(0) = i + j + k$, $c = i + 2k$

so $\vec{r}(t) = \left(\frac{1}{2}t^2 + 1\right) i + e^t j + (te^t - e^t + 2)k.$