Parametrization of curves

- If we are thinking of a particular particle moving around in space, the parametrization itself is important. If we only care about the points "etched out," then any parametrization will work.

- To parametrize a straight line from point a to point b, find the vector $\mathbf{d} = \mathbf{a} - \mathbf{b}$ and use the parametrization $\mathbf{r}'(t) = \mathbf{a} + t\mathbf{d}, 0 \leq t \leq 1$.

- If a parametrized curve has the form $\mathbf{r}'(t) = (blah \cdot cos(t), blah \cdot sin(t), blech)$ it is a circular motion with height equal to $blech$ and radius equal to $blah$, note that $blah$ and $blech$ may depend on t.

Differentiation

- Curves are vector functions and hence follow rules of differentiation that are essentially vector forms of the standard rules of differentiation.

- Bucky's Theorem: $|\,\mathbf{r}(t)\,|$ constant requires $\mathbf{r}\cdot\mathbf{r}' = \mathbf{0}$. Note that the reverse also is true.