

Vector Functions and Curves
One variable functions

Question

If the position and velocity of a particle satisfy $\underline{r} \bullet \underline{v} > 0$, what does this tell you about the motion of the particle. What if $\underline{r} \bullet \underline{v} < 0$?

Answer

If $\underline{r} \bullet \underline{v} > 0$ then $|\underline{r}|$ is increasing.

So \underline{r} is moving away from the origin. The converse is also true.

If $\underline{r} \bullet \underline{v} < 0$ then $|\underline{r}|$ is decreasing and it can be seen that \underline{r} is moving towards the origin.