Vector Functions and Curves
One variable functions

Question
Find the velocity, speed and acceleration of the particle with position given by $\underline{r}(t)$ at time t. Also determine the particles path.

$$\underline{r} = t^2\underline{j} + t\underline{k}$$

Answer
Position: $\underline{r} = t^2\underline{j} + t\underline{k}$
Velocity: $\underline{v} = 2t\underline{j} + \underline{k}$
Speed: $v = \sqrt{4t^2 + 1}$
Acceleration: $\underline{a} = 2\underline{j}$
Path: the parabola $y = z^2$ in the plane $x = 0$.