**Application to Mechanics**

Out of displacement, speed, acceleration, force, mass and time, all but mass and time are vectors. Clearly these can act in 3D space.



**Example**

[Textbook] **A particle of mass 0.5 kg is acted on by three forces.**

$$F\_{1}=\left(2i-j+2k\right) NF\_{2}=\left(-i+3j-3k\right) NF\_{3}=\left(4i-3j-2k\right) N$$

1. **Find the resultant force** $R$ **acting on the particle.**
2. **Find the acceleration of the particle, giving your answer in the form** $\left(pi+qj+rk\right)$ **ms-2.**
3. **Find the magnitude of the acceleration.**

**Given that the particle starts at rest,**

**d. Find the distance travelled by the particle in the first 6 seconds of its motion.**

Ex 12D p.348-349