**Integrating Vectors**

We can integrate vectors by integrating each function of time separately.

Remember each component will have a constant of integration, .

**Example**

A force acts on a body of mass 250g which is initially at rest at a fixed point O. If N, where is the time for which the force has been acting on the body, find expressions for:

a) The velocity vector of the body at time .

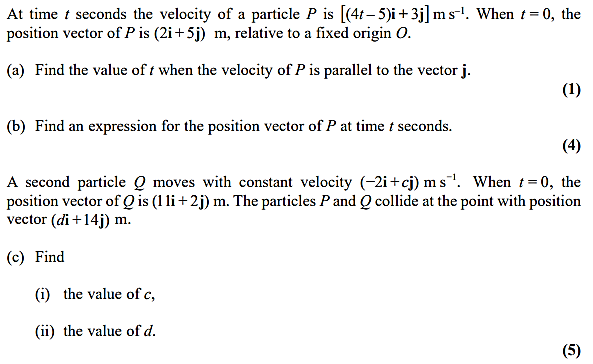
b) The position vector of the body at time .

**Example** *(Textbook)*

A particle is moving in a plane so that, at time seconds, its acceleration is ms-2. When , the velocity of is ms-1 and the position vector of is m with respect to a fixed origin . Find:

1. the angle between the direction of motion of and when
2. the distance of from when .

**Test Your Understanding** *(EdExcel M2 Jan 2013 Q4)*



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