**Differentiating Vectors**

We use calculus with 2-d (and 3-d) vectors by differentiating and integrating each function of time separately:

If , then

**Example**

A particle of mass 0.8kg is acted on by a single force N. Relative to a fixed origin , the position vector of at time seconds is metres, where

Find:

1. the speed of when
2. the acceleration of as a vector when
3. when .

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