**11B Differentiating between x, v, a**



1. A particle P is moving along the x-axis. At time t seconds, the displacement x metres from O is given by:

$$x=t^{4}-32t+12$$

Find:

1. The speed of P when t = 3
2. The value of t for which P is instantaneously at rest
3. The magnitude of acceleration when t = 1.5