**11D Integrating between x, v, a**

1. A particle is moving on the x-axis. At time , the particle is at the point where . The velocity of the particle at time t seconds () is . Find:
2. An expression for the displacement of the particle from O at time t seconds
3. The distance of the particle from its starting point when
4. A particle travels in a straight line. After seconds its velocity, , is given by . Find the distance travelled by the particle in the third second of its motion.