C12 - 5.7 - Int Part Mot

A particle moves along a straight line.

Find the distance and displacement over the first 2 seconds using integration and check with position.

$v(t) = t^2 - 1$ $v(t) = 3x^3 - 3x$

A particle moves along a straight line. Find the position function and the position at $t = 3s$.

$v(t) = 4t^3 + 3t^2,$ $s(0) = 1$

A particle moves along a straight line. $a(t) = 4cost$ $v(0) = 1$ $s(0) = -2$ $[0,6]$

$a(3) = ?$ $a(5) = ?$ $v(t) = ?$ $v(3) = ?$ $s(t) = ?$ $s(2) = ?$

Draw a 1D, Position, Velocity and Acceleration vs time graphs.

When is the particle at rest?

When does the particle change direction?

When is the particles acceleration greatest?

When is the particle farthest from the origin?

When is the particle moving in the positive direction?

When is the particle speeding up?

When is the particle slowing down?

Find the distance and displacement over the first 5 seconds using integration and check with position.