LINEAR MOTION REVIEW

1. The position (x-coordinate) of a particle moving on the line $y = 2$ is given by $x(t) = 2t^3 - 21t^2 + 60t - 50$ where t is the time in seconds, $t \geq 0$ and x is the position in feet from the point (0,2).

(a) At what time(s) is the particle at rest?
(b) At what time(s) is the particle moving to the right?
(c) At what time(s) is the particle moving to the left?
(d) What is the maximum SPEED of the particle on the interval [1,6]?
(e) On what interval is the particle's velocity increasing?
(f) What is the TOTAL DISTANCE TRAVELLED by the particle on the interval [1,6]?
(g) At what time is the particle at the point (10,2)?

2. The position (x-coordinate) of a particle moving on the line $y = 2$ is given by $x(t) = t^3 - 3t^2 - 9t + 2$ where t is the time in seconds, $t \geq 0$ and x is the position in feet from the point (0,2).

(a) When does the particle change direction?
(b) What is the total distance traveled by the particle on the interval [0,4]?
(c) What is the particle's acceleration at $t = 2$?
(d) On [-1,3], when is the SPEED of the particle a maximum?