Question
What kind of function best describes the graph?

A liner Function

(2) Assume that the data can be described by the function of the form $x(t) = x_i + v_i t$ where x_i is the position when t=0 and v_i is the instantaneous velocity when t=0. Use your position data and the method for determining the instantaneous velocity described above to determine these two values, then fill in the blanks in the equation below

x(t)=_____ +_____ t

Use this equation to determine x(t) when t=3Δt. Compare the result of your calculation with the measured position at that point. 3 (

Tilted Track: Collect position data for 8-10 points as you did with the level track. Then estimate the instantaneous velocity at 6 of these. Use the computer software to graph position versus time and then plot another graph displaying instantaneous velocity versus time. t(0) = 27, t(1) = 21, t(2) = 18.3, t(3) = 18.25, t(4) = 20.2
t(5) = 22, t(6) = 23.7

(1) Use the software's "best fit" feature to fit a linear function to the velocity data. The equation will be of the form: $v(t) = v_i + at$ where v_i is the t=0 velocity and a the acceleration. Based on your best fit equation fill in the blanks below including units for all terms:

v(t)=_____ + _____ t

(2) The position function should be a parabola of the form: $x(t) = x_i + v_i t + \frac{1}{2}at^2$. Use your results from (1) and your initial position to fill in the blanks below:

x(t)= _____ + _____ t + (1/2)_____ t^2.

(3) Use your position equation to determine the position of the puck when t=3 Δt. Compare this result to the measured position at that point.

(4) Determine the velocity at 3 Δt using your velocity equation. Compare this to the measured value.