

MATHCAD Example: Tables and Graphs

Let t (time) range from 0 to 10 in increments of 0.5

$$t := 0.0, 0.5.. 10.0$$

Note: Type a semicolon (;) for the ellipsis (..) or select the m..n button on the Math palette.

x(t) = distance as a function of time

$$x(t) := 1.25 \cdot t^3 + 5 \cdot t + 4$$

Note: Type x(t) as it appears in order to use t as an argument.

v(t) = velocity = derivative of x(t)

$$v(t) := \frac{d}{dt} x(t)$$

Note: Use the d/dx button on the toolbar for the derivative

a(t) = acceleration = derivative of v(t)

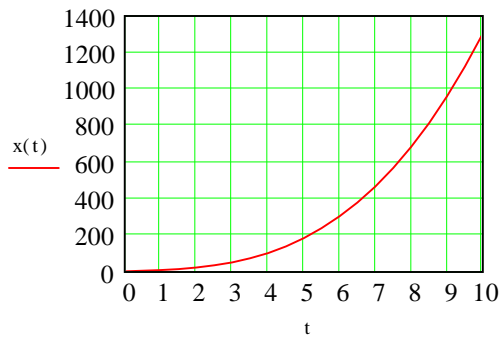
$$a(t) := \frac{d}{dt} v(t)$$

t =	x(t) =	v(t) =	a(t) =
0	4	5	0
0.5	6.656	5.937	3.75
1	10.25	8.75	7.5
1.5	15.719	13.437	11.25
2	24	20	15
2.5	36.031	28.437	18.75
3	52.75	38.75	22.5
3.5	75.094	50.937	26.25
4	104	65	30
4.5	140.406	80.938	33.75
5	185.25	98.75	37.5
5.5	239.469	118.437	41.25
6	304	140	45
6.5	379.781	163.438	48.75
7	467.75	188.75	52.5
7.5	568.844	215.937	56.25

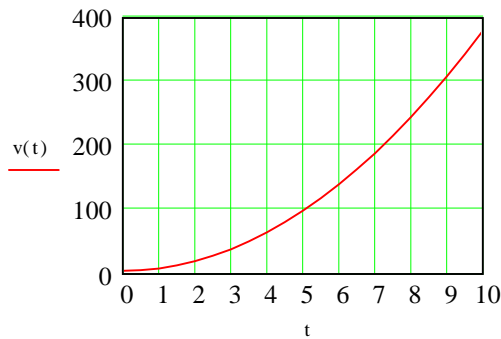
Note: Simply type 't=' and the table for t appears. Similarly, type 'x(t)=', 'v(t)=', and 'a(t)=', and the other 3 tables appear.

Note: Change the numeric format by selecting FORMAT - NUMBER (or by double-clicking on the table).

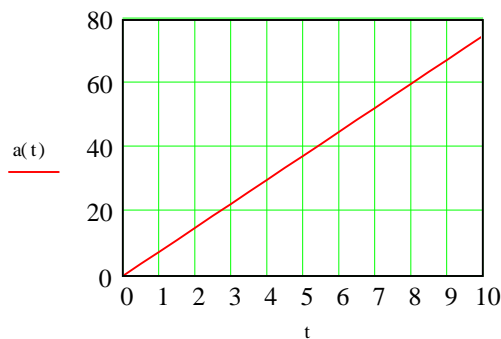
Distance vs time



Velocity vs Time



Acceleration vs time



Notes on graphing:

1. Select the graph symbol from the toolbar to insert a graph.
2. Type in the x and y axis variables in the boxes provided. Click outside the graph box to see the graph appear.
3. Leave the max and min boxes empty for autoscaling. Fill in the boxes in order to override the autoscaling.
4. Double-click on the graph in order to edit its format. (You might wish to add grids and numbers. If you uncheck AUTOGRID you can specify the number of grid lines to be used.)
5. Use text outside the graph box to add a title.