

Lesson 13 Curve Fitting – Chapter 7

- **Finding the Slope and Intercept**
- **Adding the Trendline to a Chart**
- **Adding the Trendline Equation**

Often when we have data and plotted it, we find there is a trend. If we could mathematically represent the curve, we could then use the formula generated for predictions.

Consider a table having X and Y values. X is the independent variable and Y is the dependent variable.

Example : time could be considered as an independent variable and velocity could be considered a dependent variable. Let's graph Y vs X which we know forms a line -- ($Y = mX + C$) --.(using chart wizard). "m' is the slope of the line and 'C' Is the intercept. After drawing the chart, let us see how to add trendline and trendline equation.

Right click on marker – all markers show as yellow stars.

Click on Add trendline – linear

Type – linear

Right Click on Trendline

Format Trendline

Options

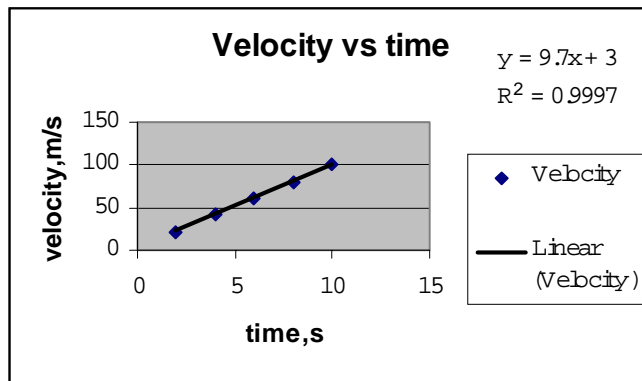
1. Set intercept = 0
2. Display equation on chart
3. Display R^2 value on chart

Click on last two boxes (items 2 &3 above)

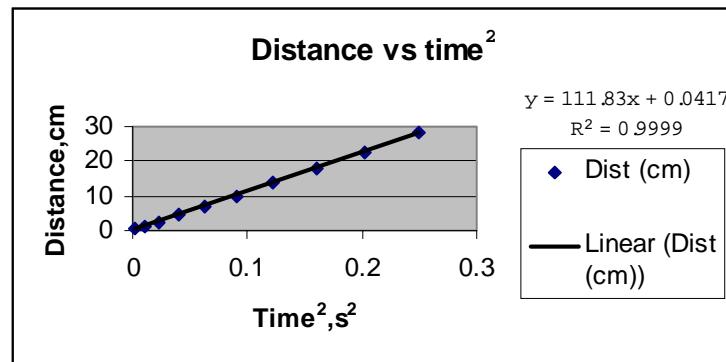
Equation comes up of the form $Y = mX + C$

R^2 = coefficient of determination (tells us how well the data fits the chart)

Do exercise 1 and 3.



| | | | | | | | | |
|----------|----|----|----|----|-----|-----------|--------|-----|
| Time | 2 | 4 | 6 | 8 | 10 | slope | acc | 9.7 |
| Velocity | 22 | 42 | 62 | 80 | 100 | intercept | in.vel | 3 |



slope 111.82627
intercept 0.0417216

| Time(t),s | t ² ,s ² | Dist (cm) |
|-----------|--------------------------------|-----------|
| 0.05 | 0.0025 | 0.3 |
| 0.1 | 0.01 | 1.25 |
| 0.15 | 0.0225 | 2.4 |
| 0.2 | 0.04 | 4.6 |
| 0.25 | 0.0625 | 7.1 |
| 0.3 | 0.09 | 10 |
| 0.35 | 0.1225 | 13.7 |
| 0.4 | 0.16 | 18.1 |
| 0.45 | 0.2025 | 22.6 |
| 0.5 | 0.25 | 28 |