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> # Maple Worksheet for maple lab 3, data set 2.
# Compute the best-fit quadratic to DataSet2.txt.
# Quadratic is  $y = v[1] x^2 + v[2] x + v[3]$ 
> restart;
> # data set 2, size 303
> myfile2 := "./DataSet2.txt";
> DataSet2 := readdata(myfile2,2);

> nops(DataSet2); # Number of data items
> plot(DataSet2,color=red,style = point );
> c:=0:d:=11: # Estimate t-domain from the plot
> M2:=Matrix(DataSet2);
> a2:=M2.<1,0>; # Data column for t-values
> a1:=<map(x->x^2, a2)>; # Squares of t-values
> b:=M2.<0,1>; # Data column for y(t)-values
> a3:=<seq(1,i=1..303)>; # Column vector of ones
> A:=<a1|a2|a3>;
> v:=(A^+.A)^(-1).(A^+.b); # Solution of normal equation  $A^T A v = A^T b$ 
> y:=v[1]*x*x+v[2]*x+v[3]; # Best-fit quadratic equation
       $y := -0.990491113817933 x^2 + 9.94700761179682 x + 0.900319213225288$ 
> opts:=color=[red,blue],style=[point,line],symbolsize=16,
thickness=3: # Plot options
> plot([DataSet2,y],x=c-1..d+1,opts);

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(1)

