```
> # Maple Worksheet for maple lab 3, first example
> restart;
> # Example: Plot data and a best-fit line on one graphic.
  # Line is y = (slope)x + (intercept). Compute best-fit
  # intercept v[1] and slope v[2] for the data set below.
```

```
> Points:=[ [0, 1], [1, 2.1], [2,3.9]]; M:=Matrix(Points);
```

$$Points := [[0, 1], [1, 2.1], [2, 3.9]]$$

$$M := \begin{bmatrix} 0 & 1 \\ 1 & 2.1 \\ 2 & 3.9 \end{bmatrix}$$

(1)

```
> a1:=<0,1,2>:a2:=<1,1,1>:A:=<a1|a2>:b:=<1,2.1,3.9>:
  A,b;
```

$$\begin{bmatrix} 0 & 1 \\ 1 & 1 \\ 2 & 1 \end{bmatrix}, \begin{bmatrix} 1 \\ 2.1 \\ 3.9 \end{bmatrix}$$

(2)

```
> v:=(A^+.A)^(-1).((A^+).b); # Solution to normal equations A^T A v
  = A^T b
```

$$v := \begin{bmatrix} 1.45000000000000 \\ 0.883333333333334 \end{bmatrix}$$

(3)

```
> y:=v[1]*x+v[2]; # Best-fit line
```

$$y := 1.45000000000000\, x + 0.883333333333334$$

(4)

```
> opts:=color=[red,blue],style=[point,line],symbolsize=16,
  thickness=3: # Plot options
> plot([Points,y],x=-1..3,opts);
```