```
> with(LinearAlgebra) :
> with(plots) :
>
> Seed := randomize( ) :
>  basis(x) := [1, x] :

> a := 0 :
> b := 13 :

> n := 22 :


>
>
> y[1] := 2 :
   y[2] := 5 :
   y[3] := 5 :
   y[4] := 4 :
   y[5] := 3 :
   y[6] := 1 :
   y[7] := 3 :
   y[8] := 4 :
   y[9] := 5 :
   y[10] := 1 :
   y[11] := 3 :
   y[12] := 1 :
   y[13] := 2 :
   y[14] := 4 :
   y[15] := 5 :
   y[16] := 4 :
   y[17] := 4 :
   y[18] := 2 :
   y[19] := 5 :
   y[20] := 4 :
   y[21] := 1 :
   y[22] := 3 :
> x[1] := 1 :
   x[2] := 2 :
   x[3] := 7 :
   x[4] := 5 :
   x[5] := 3 :
   x[6] := 0 :
   x[7] := 4 :
   x[8] := 10 :
   x[9] := 8 :
   x[10] := 2 :
   x[11] := 3 :
   x[12] := 1 :
   x[13] := 2 :
   x[14] := 4 :
   x[15] := 6 :
```

```
x[16] := 5 :
x[17] := 3 :
x[18] := 4 :
x[19] := 10 :
x[20] := 8 :
x[21] := 2 :
x[22] := 4 :
> for i from 1 to n by 1 do dop_mas[i] := [x[i], y[i]] end do:
>
> P := Matrix(n, ColumnDimension([basis(x)]), [seq(basis(x[i]), i = 1 ..n)])
```

$$P := \begin{bmatrix} \textit{22 x 2 Matrix} \\ \textit{Data Type: anything} \\ \textit{Storage: rectangular} \\ \textit{Order: Fortran\_order} \end{bmatrix} \tag{1}$$

```
>
> yM := Transpose(Matrix([seq(y[i], i = 1 .. n)]))
```

$$yM := \begin{bmatrix} \textit{22 x 1 Matrix} \\ \textit{Data Type: anything} \\ \textit{Storage: rectangular} \\ \textit{Order: Fortran\_order} \end{bmatrix} \tag{2}$$

```
> a := (Transpose(P) . P)^(-1) . Transpose(P) . yM
```

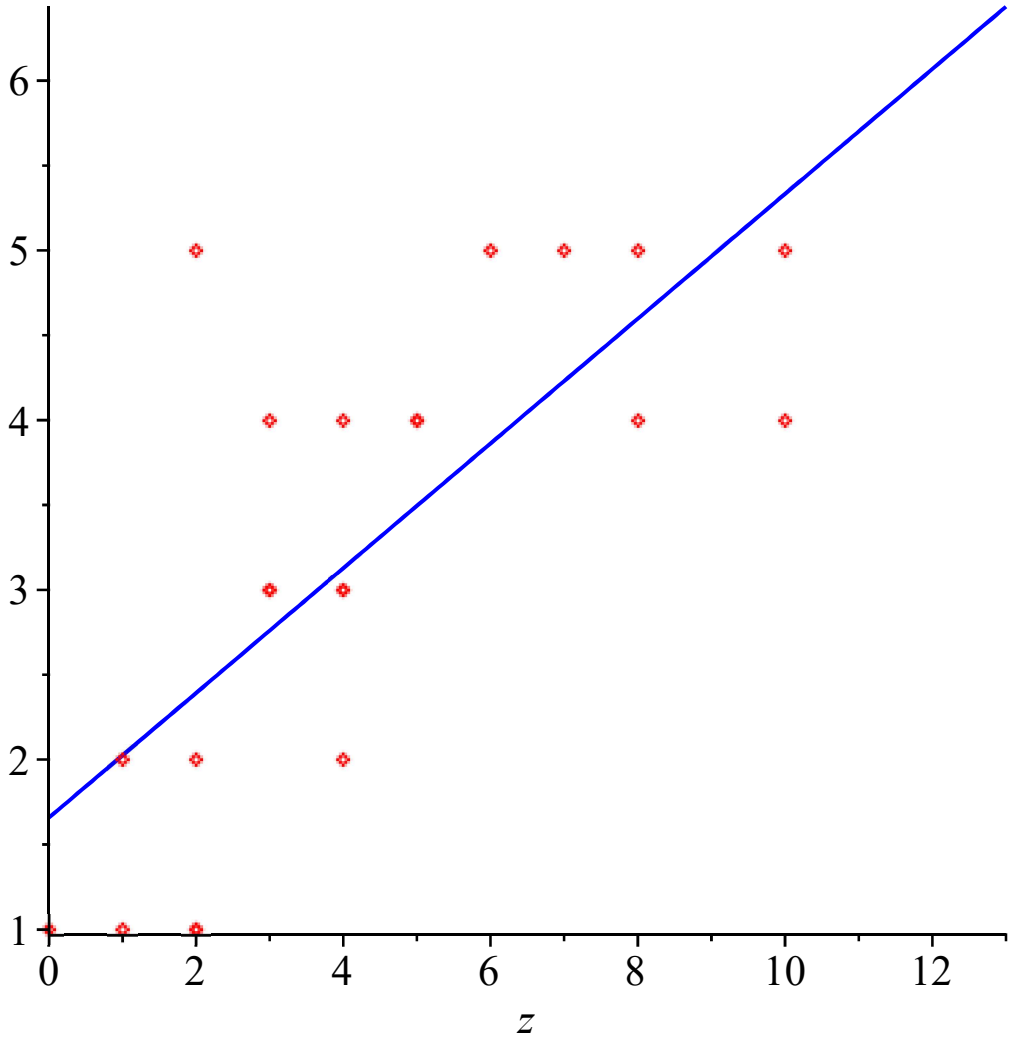
$$a := \begin{bmatrix} \frac{1552}{937} \\ \frac{689}{1874} \end{bmatrix} \tag{3}$$

```
> q(x) := evalm(basis(x) . a)
```

$$q := x \mapsto evalm(basis(x) \cdot a) \tag{4}$$

```
> g(x) := evalf(q(x)[1]) :
> #g(x)
> for i from 1 to n by 1 do summa[i] := (g(x[i]) - f(x[i]))^2 end do:
>
> s := evalf(sum(summa[k], k = 1 ..n)) :
>
> #d :=sqrt(s/n) :
> #g(x) :
>
> f_g := plot(g(z), z = 0 ..13, color = blue) :
  plot_point := plot([dop_mas[1], dop_mas[2], dop_mas[3], dop_mas[4], dop_mas[5],
      dop_mas[6], dop_mas[7], dop_mas[8], dop_mas[9], dop_mas[10], dop_mas[11],
      dop_mas[12], dop_mas[13], dop_mas[14], dop_mas[15], dop_mas[16], dop_mas[17],
      dop_mas[18], dop_mas[19], dop_mas[20], dop_mas[21], dop_mas[22]], style = point,
```

```
color = red ) :
> display( f_g, plot_point )
```




```
>
```