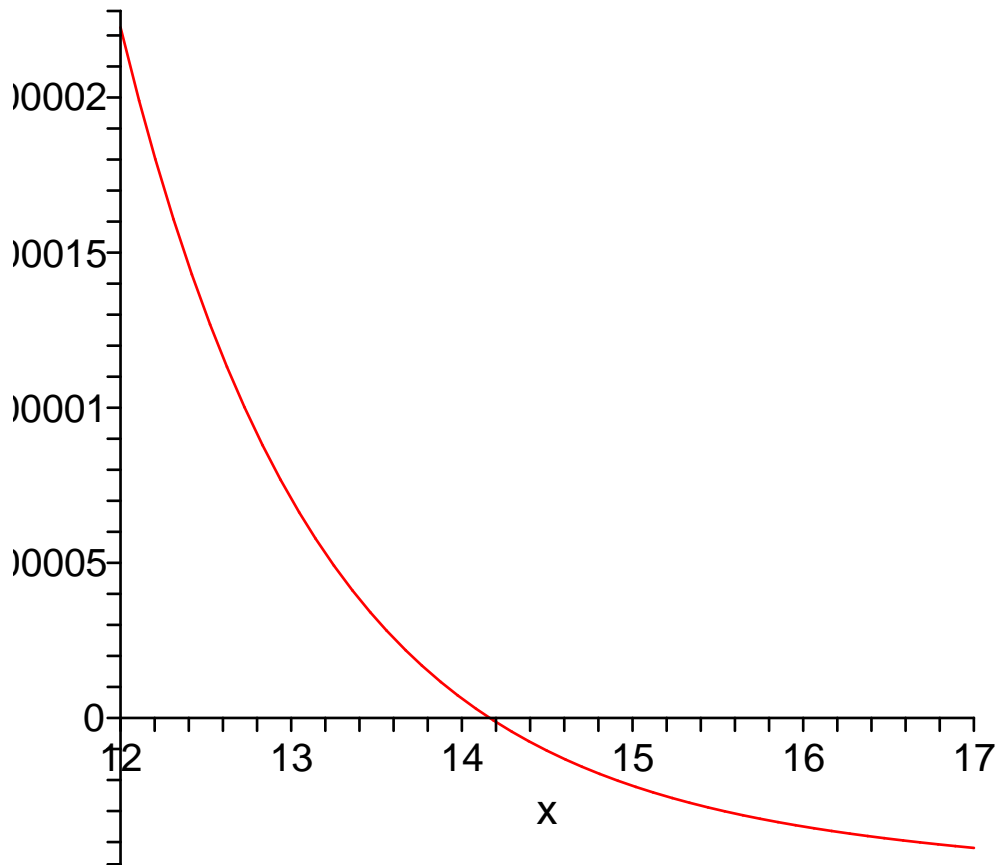


```
> restart;
```

```
> f := (sqrt(2)-1)^x-0.00000025*(x+1);
```

$$f := (\sqrt{2} - 1)^x - 2.5 \cdot 10^{-7} x - 2.5 \cdot 10^{-7}$$

```
> plot(f,x=12..17);
```



```
> df := diff(f, x);
```

$$df := (\sqrt{2} - 1)^x \ln(\sqrt{2} - 1) - 2.5 \cdot 10^{-7}$$

```
> A := x-f/df;
```

$$A := x - \frac{(\sqrt{2} - 1)^x - 2.5 \cdot 10^{-7} x - 2.5 \cdot 10^{-7}}{(\sqrt{2} - 1)^x \ln(\sqrt{2} - 1) - 2.5 \cdot 10^{-7}}$$

```
> phi := unapply(A, x);
```

$$\phi := x \rightarrow x - \frac{(\sqrt{2} - 1)^x - 2.5 \cdot 10^{-7} x - 2.5 \cdot 10^{-7}}{(\sqrt{2} - 1)^x \ln(\sqrt{2} - 1) - 2.5 \cdot 10^{-7}}$$

```
> x0 := 17;
                                x0:= 17
> x1 := evalf(phi(x0));
                                x1:= 9.007942146
> x2 := evalf(phi(x1));
                                x2:= 10.13367468
> x3 := evalf(phi(x2));
                                x3:= 11.24199151
> x4 := evalf(phi(x3));
                                x4:= 12.30075830
> x5 := evalf(phi(x4));
                                x5:= 13.22910345
> x6 := evalf(phi(x5));
                                x6:= 13.87502482
> x7 := evalf(phi(x6));
                                x7:= 14.13124871
> x8 := evalf(phi(x7));
                                x8:= 14.16264373
> x9 := evalf(phi(x8));
                                x9:= 14.16305540
> x10 := evalf(phi(x9));
                                x10:= 14.16305547
>
```