$$km(x,\beta) := \beta_1 + \cfrac{\beta_8}{x+\beta_2 - \cfrac{\beta_9}{x+\beta_3 - \cfrac{\beta_{10}}{x+\beta_4 - \cfrac{\beta_{11}}{x+\beta_5 - \cfrac{\beta_{12}}{x+\beta_6 - \cfrac{\beta_{13}}{x+\beta_7}}}}}}$$

$$\beta := \begin{bmatrix} -16702.7193446 \\ 124.751615769 \\ -208.000512345 \\ -16.7911347830 \\ -4.95425422188\,10^{-2} \\ -8.76777990888 \\ -1.33046986462 \\ 4191546.15004 \\ 4221.26725909 \\ 5327.77204957 \\ 1.34644054551 \\ 4.17574113874 \\ 0.274345957759 \end{bmatrix}$$

```
plot(data, char, size, clr) := | for k ∈ 1 .. rows(data)
                               |   [r3_k := char  r4_k := size  r5_k := clr]
                               | augment(data, r3, r4, r5)
```

$$data := \begin{bmatrix} 0 & 60000 \\ 0.5 & 35462 \\ 1 & 30747 \\ 2.1 & 26217 \\ 3.6 & 22781 \\ 5.6 & 19921 \\ 9.7 & 16453 \\ 14.7 & 13766 \\ 22.3 & 11115 \\ 32.4 & 8654 \\ 50.2 & 5563 \\ 75.5 & 2423 \\ 101.325 & 0 \end{bmatrix}$$

data := plot(data, "o", 5, "black")

XY := data_{1..13 1..2}

X := col(XY, 1) Y := col(XY, 2)

$$k(x) := \begin{cases} 1 & \text{if } (0 \le x) \wedge (x \le 101.325) \\ "" & \text{otherwise} \end{cases}$$

Absolute residuals

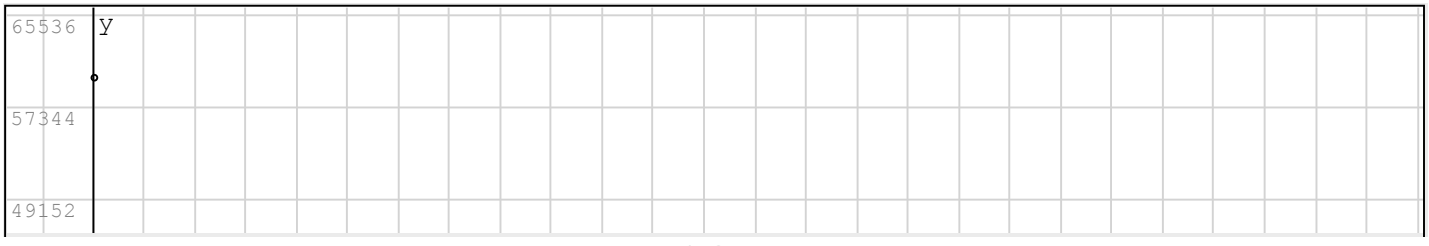
```
Δ := | Δ := 0
     | for j ∈ 1 .. rows(XY)
     |   Δ_j := eval(Y_j - km(X_j, β))
     | res := augment(X, Y, round(Δ, 12))
     | stack(["kPa" "alt[m]" "Δm"], res)
```

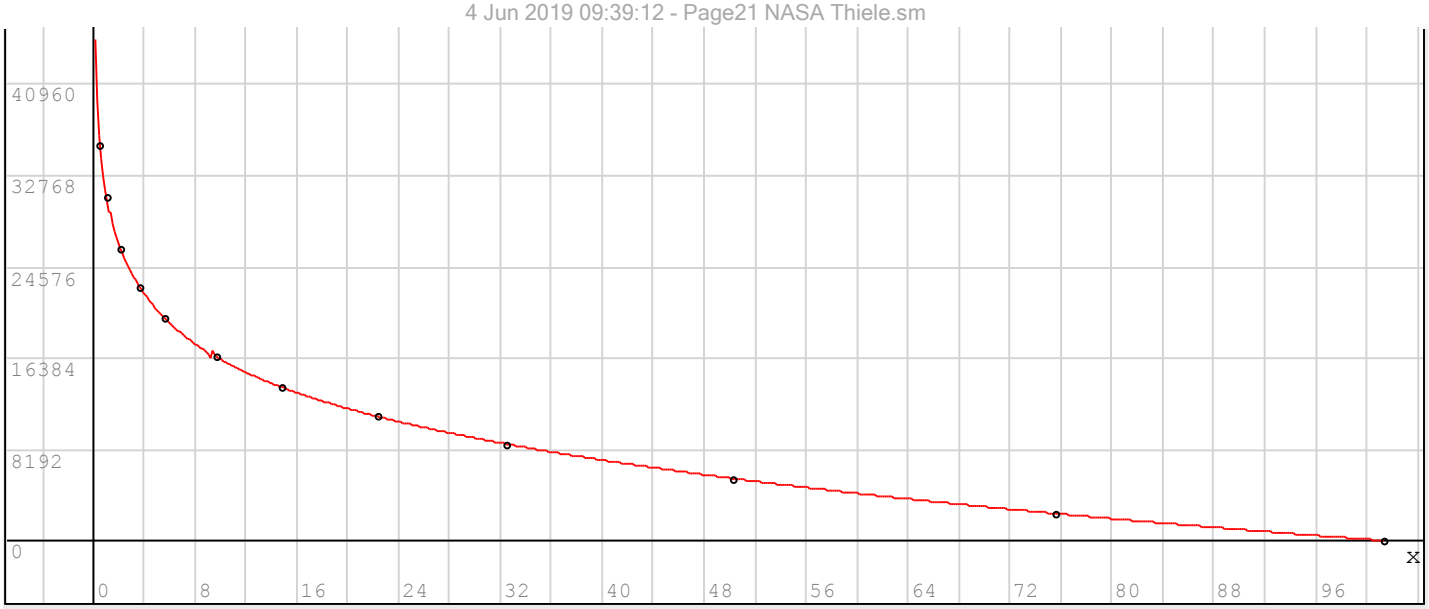
Δm := col(Δ, 3)

$$\Delta = \begin{bmatrix} "kPa" & "alt[m]" & "\Delta m" \\ 0 & 60000 & 0 \\ 0.5 & 35462 & 0 \\ 1 & 30747 & 0 \\ 2.1 & 26217 & 0 \\ 3.6 & 22781 & 0 \\ 5.6 & 19921 & 0 \\ 9.7 & 16453 & 0 \\ 14.7 & 13766 & 0 \\ 22.3 & 11115 & 0 \\ 32.4 & 8654 & 0 \\ 50.2 & 5563 & 0 \\ 75.5 & 2423 & 0 \\ 101.325 & 0 & 0 \end{bmatrix}$$

$$\Delta m = \begin{bmatrix} "\Delta m" \\ 0.000000 \\ 0.000000 \\ 0.000000 \\ 0.000000 \\ 0.000000 \\ 0.000000 \\ 0.000000 \\ 0.000000 \\ 0.000000 \\ 0.000000 \\ 0.000000 \\ 0.000000 \\ 0.000000 \end{bmatrix}$$

altitude [m] vs measured pressure [kPa] ... i.e: InverseNASA(h)





$$\begin{cases} \text{data} \\ \text{km}(x,\ \beta)\cdot k(x) \end{cases}$$

https://www.grc.nasa.gov/WWW/K-12/airplane/atmosmet.html

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