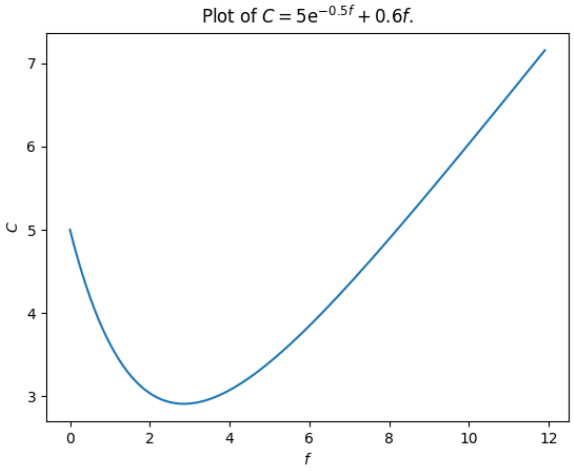
Maintenance – solution

We can plot C.



To find the minimum, we find

$$\frac{\mathrm{d}C}{\mathrm{d}f} = -\frac{5}{2}\mathrm{e}^{-0.5f} + 0.6.$$

Then $\frac{\mathrm{d}C}{\mathrm{d}f} = 0$ when

$$\begin{aligned}\frac{5}{2}\mathrm{e}^{-0.5f} &= 0.6\\ f &= -2\ln\left(\frac{6}{25}\right) \approx 2.854.\end{aligned}$$

So we minimise C by running maintenance 3 times a year.