Problem 2g

October 2, 2019

1 Problem 2g - oblig STK3405 - H19

- We assume that q=1, L=1000m and lambda=0.001.
- Then we can compare the results for h_1 (bridge) and h_2 (improved pipeline quality), which we import from exercise 2e and 2f respectively.

```
[7]: from math import exp

     q = 1
     L = 1000
     v_lambda = 0.001

     h_1 = q*exp(-v_lambda*L)*(2-exp(-v_lambda*L/2))*(2-exp(-v_lambda*L/
      ↪2))+(1-q)*exp(-v_lambda)*(2-exp(-v_lambda*L))
     h_2 = exp((-v_lambda/2)*L)*(2-exp((-v_lambda/2)*L))

     print('Reliability for h_1:', h_1, '\n\nReliability for h_2:', h_2)
```

Reliability for h_1: 0.7143324073286628

Reliability for h_2: 0.8451818782538245

1.1 Conclusion:

As we can see, with the same conditions and variables, the reliability for h_1 is smaller than h_2, then if the price to build a bridge is the same as the price of improving the pipeline quality, I would choose to improve the pipeline quality because its reliability is larger!