

Maple Lab Sheet

In this final lab session, we will explore the maths package MAPLE.

1. Use MAPLE to perform the following calculations:

- $5 + 2$
- $\frac{d}{dx}x^2 + 5x + 7$
- Integrate the answer to the previous expression
- $\int_0^2 x^2 + 5x + 7dx$
- $\begin{pmatrix} 2 & 0 & 4 \\ 5 & 5 & \pi \end{pmatrix} \begin{pmatrix} 5 & 4 \\ e & 5 \\ \ln 2 & \frac{1}{5} \end{pmatrix}$
- $\sum_{i=0}^n p^i$
- Evaluate the previous expression for $p = .5$
- Evaluate the previous expression for $n = 20$

2. Create a plot of the following function: $f : x \rightarrow 5x^2 + 2x + 7$.

3. Create a plot of the following function: $f : (x, y) \rightarrow 5x^2y^3 + 2xy + 7 + 20y$

4. Finally use MAPLE to *verify/experiment* with results from the course notes:

- The expected value of the negative exponential distribution.
- The relationship between $r(t)$, $R(t)$, $F(t)$ and $f(t)$ for the Weibull distribution.
- Differentiate some of the cost functions from Inventory Theory to verify results from the notes.
- Anything else you can think of?