**COMP1003 Maths Worksheet**

1. Compute sin(.1) using the Taylor expansion from the lectures up to 3 terms.
2. Assume you have 2 data points (x,y)= (0,1) and (2, 3). Computer linearly interpolated y-values at x=0.1, 0.25, and 0.5
3. Estimate the slope of x2 at x=1 using a few secants that get closer to the tangent.
4. Compute an approximate integral of x2 over the range -1 to 1 using 8 slices for the Riemann sum.
5. Compute an approximate zero crossing of the function x3 + 1 using Newton’s method.
6. Compute an approximation of the location of the minimum of the function 1/4 x4 + x using Newton’s method
7. Do some reading about the Fast Fourier Transform. What does it do? What are some applications in Computing?