

Written HW12 – MATH 2501 Fall 2021

**Due by 1 October for timely completion credit**

Full credit on these problems require a fully symbolic derivation of the solutions.

Determine the local extrema using the first derivative test.

1.  $f(x) = 2x^3 - 3x^2 - 12x$

2.  $f(x) = x^2 e^x$

3.  $f(x) = \cos^2(x) - 2\sin(x)$  (only for  $x$  in the interval  $[0, 2\pi]$ )