

### Practice Quiz 3

1. Use the graphing feature of MAPLE to demonstrate that the graph of an odd degree polynomial must always cross the x-axis.

2. Find the value of M so that

If  $m > M$  then  $r = 2x^2 + 5x + m$  has no real roots.

If  $m = M$  then  $r = 2x^2 + 5x + m$  has one real root.

If  $m < M$  then  $r = 2x^2 + 5x + m$  has two real roots.

3. Provide a nice smooth looking graph for each of the following:

a.  $f1 := (1 + \cos(10\sqrt{x^2 + y^2})) e^{(-x^2 - y^2)}$       b.  $-x^2 + 2y^2 + z^2 = 1$

4. Provide a graph, or graphs, of  $f = \frac{2x^4 + 5x^3 - 5x^2 - 20x - 12}{x^3 - 2x^2 - x + 2}$  which clearly displays, or display, all the intercepts and all the asymptotic behavior of f.

5. Find the slant asymptote in f in # 4.