

MAPLE PROJECT 1
Deadline February 10, 2006.

1. Consider the function $g(x) = x^3 - 4x$ and $G(x) = 2x^2 - 3$.
 - (a) Plot the graphs of these two functions together on the interval $[-2, 2]$.
 - (b) Find the points of intersection of the two graphs.
 - (c) How should you adjust the interval in (a) so that the graph shows the answer in part (b) ? Can you answer (b) using (a)? Explain.

1. Consider the piecewise function

$$f(x) = \begin{cases} 1 + x^2 & \text{if } x \leq 0; \\ 2 - x & \text{if } 0 < x \leq 1; \\ (x - 2)^2 & \text{if } x > 1 \end{cases}$$

- (a) Use “**plot, discontin= true**” command to graph the function.
- (b) Use “**limit**” command to find the limit of the function at $x = 0$ and $x = 1$.
- (c) Find the numbers at which $f(x)$ is discontinuous.