

## Workshop #6 (October 30<sup>th</sup>, 2008)

Please turn in your Maple work.

1. Piecewise Functions. Find the minimum and maximum of each of the following functions. In addition, please turn in a graph of each function.

$$(a) f(x) = \begin{cases} 2x + 1 & -2 \leq x < -1 \\ x^2 & -1 \leq x < 2 \\ -x + 6 & 2 \leq x \leq 3 \end{cases}$$

$$(b) g(x) = \begin{cases} x + 1 & 0 \leq x < 5 \\ (x - 4)^2 & 5 \leq x \leq 7 \end{cases}$$

2. The Math Department here at ASU uses a lot of white board markers. Suppose that the markers cost \$1.15 each and it costs \$0.11 (on average) to store a marker for 1 year. In addition, our marker supplier charges us \$25 to make a delivery.

*Note:* Base your inventory costs on half of the maximum number of markers stored (this is approximately the average number of markers stored).

- Find the *ideal* order size which minimizes costs if we need to purchase 100 markers each year.
- Find the *ideal* order size which minimizes costs if we need to purchase 1000 markers each year.
- Find a practical answer for part (b) – and show your work!
- What would our *ideal* order size be if we need 1000 markers each year and in addition we get markers for \$0.75 each when we order a shipment of 200 or more. Include a graph of the cost function for  $100 \leq x \leq 1000$ .