Due Date: December 7, 2011 Wednesday   NAME:...

Ali Sinan Sertöz   STUDENT NO:...

Math 113 Calculus – Homework 3

1	2	TOTAL
25	75	100

Please do not write anything inside the above boxes!

Check that there are 2 questions on your booklet. Write your name on top of every page. Show your work in reasonable detail. A correct answer without proper or too much reasoning may not get any credit. No hanging expressions will be read. No interpretation of your work will be attempted. Write everything you want us to know. Do not leave anything to mind reading; we do not do that in Math department, yet!

Q-1) Show that e is not a rational number.

Hint: *Use Taylor's Theorem to approximate e. You can use that $e < 3$, which we proved in class.*

Q-2)

(**Designing a dustpan**) Equal squares are cut out of two adjacent corners of a square of sheet metal having sides of length 25 cm. The three resulting flaps are bent up, as shown in Figure 4.74, to form the sides of a dustpan. Find the maximum volume of a dustpan made in this way.
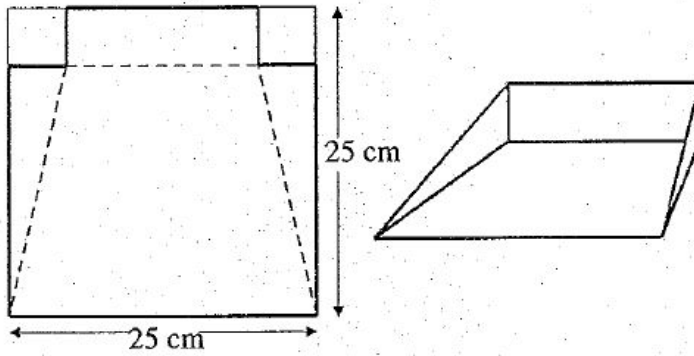

25 cm

25 cm

Figure 4.74