Unit 4 Mathematical Methods Analysis Task Number 1 2013

Part A

Part 1

In the parts with marked with \* ,you must show working. Exact answers must be given unless otherwise indicated.

Question 1

The average value of the function with rule over the interval is

4. State the correct response
5. \*Find the average rate of change of over the interval
6. Find the instantaneous rate of change when
7. Explain why for

Question 2

Consider the region bounded by the axis , the line with equation and the curve with equation . An expression for this area would be

1. State the correct response
2. \*Find the exact area
3. Evaluate correct to three decimal places.
4. \*Find the value of given that
5. Hence state the exact area of the region bounded by the lines ,

and the curve with equation

Question 3

Find given that

1. -7
2. 5
3. Why is response A obviously incorrect?
4. State the correct response
5. Explain the error that might lead to a student choosing response C
6. Sketch a graph showing the area represented by the integral . Shade this area on your graph.
7. \*Approximate this area using a left endpoint estimate with two rectangles. Give your answer correct to two decimal places.

Question 4

If and is a real constant, then in terms of would be

1. State the correct response.
2. If a student attempted this question without a calculator, when looking at the power of of (2x+1), what mistake would they seem to have made if they selected response D ?
3. \*If when find the exact value of the constant
4. \*Hence find the value of when



