School of Mathematics – Homework Feedback Form

Unit: Multivariable Calculus	Week/Problem Sheet: 1
Lecturer: Richard Porter	Set questions: 3(a,b,c), 4(a,b), 5
Marker: Zohar Neu	

General Comments

Please list and comment on those aspects which students found easy:

- **Finding derivative of a multivariable function using the Chain Rule.**
- **Calculating the derivative matrix of a multivariable function directly.**

Please list and comment on those aspects which students found hard:

- **Calculating directional derivative**

Please provide detailed feedback below, using a separate box for each set question, indicating:

- **Parts that most students were able to complete correctly.**
- **Parts that some students were able to complete correctly but some students found difficult, with a further indication of where they might find an outline of the correct method of solution.**
- **Parts that many students were unable to complete correctly and any general reasons why they all went wrong.**

Question 3

(a) Completed well in almost all cases.

(b) Many students did not realise that they were supposed to use the 'derivative' definition for the directional derivative, as opposed to the result derived in class which they were asked to use in part (c). Most of the students also forgot to normalise the direction vector **v** when calculating the directional derivative.

(c) Completed well, except in some cases when the direction vector **v** was not normalised.

Question 4

Nearly all of the students calculated H’(1,1) correctly in parts (a) and (b). This question was completed to the highest standard out of all the questions in this problem sheet.

Question 5

Overall completed well. Most students understood that they had to calculate the Jacobian for the transformation and compute its determinant, however both of these steps were done incorrectly in some cases.