School of Mathematics – Homework Feedback Form

Unit: Multivariable Calculus	Week/Problem Sheet: 3
Lecturer: Richard Porter	Set questions: 3, 4
Marker: Zohar Neu	

General Comments

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

- **Showing certain level curves corresponded ellipse/hyperbola in original space.**

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

- **Using suffix notation**

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) The quality of solutions was mixed; many students did not use suffix notation which made their answers very long. Some got confused about the notation and carried it out in terms of Phi. Many of those that did use suffix notation did not use the fact that dxi/dxi = 3, and that $xi^2 = r^2$ in order to get the final answer.
b) This was completed less well, since those that did not use suffix notation quickly got lost in the algebra. Overall if suffix notation was used the question was well done.

Question 4

a) Overall done well by most students. Some left their equations in parameterised form instead of combining them to form the recognisable equations for an ellipse and a hyperbola.
b) This part of the question was of the best quality for this sheet. Almost all students got it right.
c) Again this question was well done. There was some confusion over the definition of the Jacobian, with its rows and columns written the wrong way round (although this did not affect the final solution). Some answers did not give the conditions on mu and nu explicitly for the transformation to be non-invertible. Others did not see that nu was only defined in [0,2pi].
d) and e) were left out by the majority of the students, although strictly speaking they were just bookwork. Those that attempted them usually got to the right answers, although many tried to insert a value for f even though none was defined in the question, leading to unwieldy calculations.