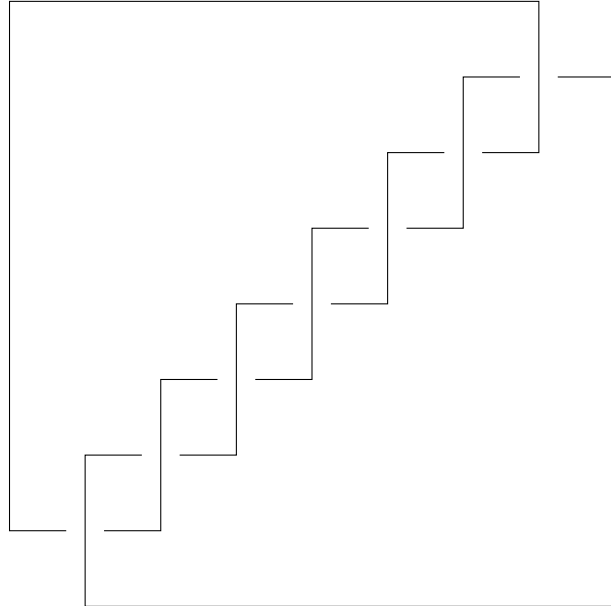


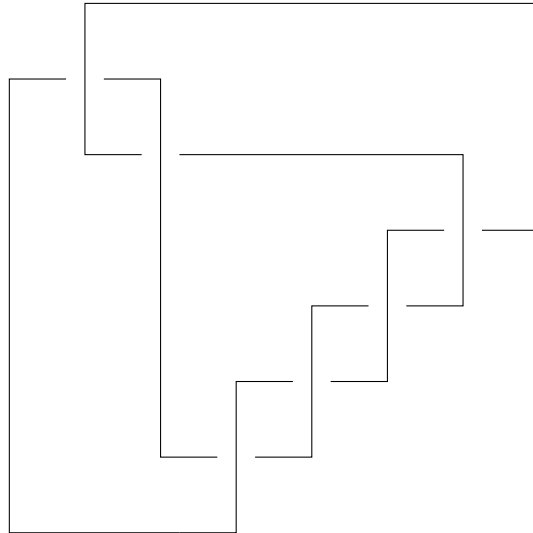
Revision Question 3 — 02/05/14

The knot 7_1 , known as the *septafoil*, is pictured below.



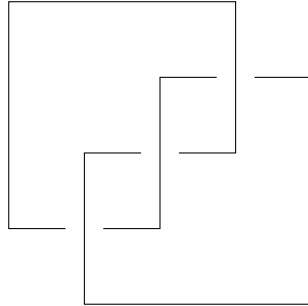
- a) There is an integer p such that 7_1 is m -colourable if and only if $p \mid m$. Find p .
Justify your answer. [8 marks]

The knot 6_1 , known as the *stevedore knot*, is pictured below.



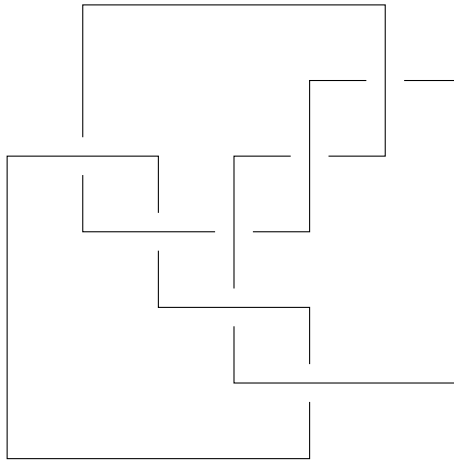
- b) Find a 15-colouring of 6_1 . [6 marks]
- c) Is 6_1 isotopic to 7_1 ? Justify your answer. You may quote without proof any results from the course. [3 marks]

The knot 3_1 , the trefoil, is pictured below.



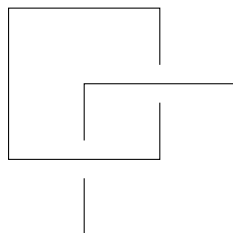
- d) Prove that 6_1 is not isotopic to 3_1 . You may quote without proof any results from the course. [12 marks]

The link 7^2_5 is pictured below.



- e) What is the linking number of 7^2_5 ? [5 marks]

The link 2^2_1 , the Hopf link, is pictured below.



- f) Prove that 7_5^2 is not isotopic to 2_1^2 . Justify your answer. You may quote without proof any results from the course. [3 marks]
- g) Can your answer to e) be used to prove that 7_5^2 is not isotopic to the unlink with two components? [3 marks]