MATHEMATICS ENRICHMENT CLUB.
Problem Sheet 2, May 13, 2014[1]

1. (a) Show that 120 is a divisor of $n^5 \quad 5n^3 + 4n$ for every integer n.

   (b) Show that 49 is not a divisor of $n^2 + n + 2$ for every integer n.

2. Three people, A, B and C, entered a competition. After the event, A reported \$B$ was second, C was rst". B said, \$A$ was second, C was third". C said, \$A$ was rst, B was third". Each person's report contained one true statement and one false one. Which of A and B performed better in the competition.

3.

5. Find all pairs of integers x and y such that $x^3 \quad y^3 = 1729$. Show that there are no others.

6.