

MATHEMATICS ENRICHMENT CLUB.

Problem Sheet 3, May 20, 2014¹

1. When multiplying two whole numbers a student by mistake reduced the tens digit in the answer by 7. She checked her answer by dividing it by the smaller factor, obtaining the quotient 48 and the remainder 17. Find the two factors.
2. Find all integers n such that $f(x) = x^n$ is differentiable at x_0 , show that f is also differentiable at x_0 .

¹Some problems from UNSW's publication *Parabola*, and the *Tournament of Towns in Toronto*