

CSC236 QUIZ 1, TUESDAY MAY 24TH

Name:

Student number:

Prove that for all integers n , if n is an integer multiple of 3 then n^2 is also an integer multiple of 3.

SAMPLE PROOF: Assume n is a generic multiple of 3, so $n = 3k$ for some integer k , so $n^2 = 9k^2 = 3(3k^2)$. Since 3 and k are integers, so is $3k^2$ (the integers are closed under multiplication), and so n^2 is an integer multiple of 3. Thus n being an integer multiple of 3 implies that n^2 is an integer multiple of 3. QED.

MARKING SCHEME: 1 mark for expressing n as a generic multiple of 3. 1 mark for using this expression to derive an expression showing that n^2 is a generic multiple of 3.