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CSIS 213-3941

Exam 2 Part 2

**Question 1**

Prove that the product of any two consecutive integers is even.

**Proof:**

Suppose that two *[particular but arbitrarily chosen]* consecutive integers are given; call them *a* and *b*. If *a* = *2k* and *b* = *2k +1* for some integer *[particular but arbitrarily chosen]* *k*. Then the product

*a \* b* = (2*k*) \* (2*k* + 1)

= 4*k*2 + 2*k*

= 2(2*k* + *k*)

Since *k* is some integer then by definition of even,

2(2*k* + *k*) = 2(*some integer*)

Thus, the statement “the product of any two consecutive integers is even” is true.