1. For the conditional statements below,

   (a) Identify the hypothesis and conclusion. (Underlining and labelling each is fine.)

   (b) Indicate whether the statement is true or false.

[2] i. If $7 > 10$, then Stephen Harper will be Prime Minister For Life.

Hypothesis: $7 > 10$. Conclusion: Stephen Harper will be Prime Minister For Life. This is a **true** statement, since the hypothesis is false.

[2] ii. If 4 is even, then 10 is odd.

Hypothesis: 4 is even. Conclusion: 10 is odd. This is a **false** statement, since the hypothesis is true, but the conclusion is false.

[2] iii. If $2 + 2 = 4$, then $6 - 5 = 1$.

Hypothesis: $2 + 2 = 4$. Conclusion: $6 - 5 = 1$. This is a**true** statement, since both the hypothesis and the conclusion are true.

2. Prove the following statement:

[4] If n is an even integer and m is any integer, then nm is an even integer.

(You can use either a two-column proof or paragraph form.)

Proof: Suppose that n and m are integers and that n is even. Since n is even, there is some integer k such that $n = 2k$. It follows that $nm = (2k)m = 2(km)$ is even, since it can be written as 2 times an integer.