1. Consider the statement, “If \( a \) is any odd integer, then 
\[ a^2 + (a + 1)^2 + (a - 7)^2 + 10 \] is divisible by 3.”

(a) Write the given statement in three different, but logically equivalent, ways using the forms suggested on pages 10–11 in the text.

(b) Give a direct proof of “If \( a \) is any odd integer, then \( a^2 + (a + 1)^2 + (a - 7)^2 + 10 \) is divisible by 3.” (Remember that a proof is to be “an essay” written in complete sentences, with correct punctuation, etc. If your proof involves doing certain calculations, you may find it best to present it using an equation array with nicely aligned equations.)

2. Exercise 5.11 on page 22 in the textbook. You are not allowed to use previous exercises as reasons to justify a step in your proof.