

1. Consider the following statement:

If m and n are odd integers, then mn is an odd integer.

(a) Express the statement using logical notation.

(b) This statement can be proven using a direct proof. Write a detailed proof *structure* for the statement. **Don't write a complete proof**—for now, focus on the proof structure only and leave out *all* of the “middle” of the argument.

(c) Now, complete the proof of the statement.

2. Consider the following statement:

If m and n are integers with mn odd, then m and n are odd.

- (a) Express the statement using logical notation.
- (b) This statement can be proven using an **indirect** proof. Write a detailed proof *structure* for the statement. **Don't write a complete proof**—for now, focus on the proof structure only and leave out *all* of the “middle” of the argument.
- (c) Now, complete the proof of the statement.