

Day 4. Here are a few problems that we didn't get to in class.

Section 1. page 49.

42. The statement is "Some auto mechanics are incompetent."

Negation: "All auto mechanics are not incompetent." This would be a fully correct answer.

Probably a better way to write that in English would be "All auto mechanics are competent."

Generally speaking, it is a good idea to avoid negatives when possible and the statement "not incompetent" is really a double negative.

Section 2. Page 60.

43. Q = Joanna will quit her job

P = Joanna will join the Peace Corps

The given statement is "Q and P."

The negation is "not (Q and P)" which is the same as "not Q or not P."

That fully answers the question as asked.

If we wanted to write it in English, we'd have "Joanna will not quit or job or she will not join the Peace Corps."

48. To negate the statement "p and not q" we have to negate each part and change the connective from "and" to "or." So that is

"not(p and not q)"

"not p or not not q"

Since a "not not q" is logically the same as "q", then this is

"not p or q".

And that is what the second statement says. So the answer is "Yes, the two statements are equivalent."

63. The statement is "You cannot claim yourself or your spouse as a dependent."

Translation: "It is false that: You can claim yourself or your spouse as a dependent."

y = claim yourself as a dependent

s = claim spouse as a dependent

Given statement: "not (y or s)".

Equivalent statement: "not y and not s".

In English: You cannot claim yourself as a dependent and you cannot claim your spouse as a dependent.