

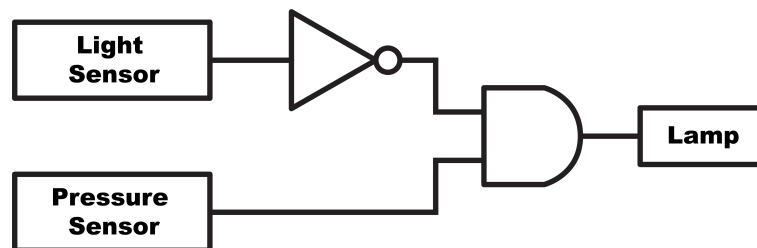
Name:
Teacher:
Class:
Date:

Logic Gate Applications - Practice Problems Set 3:

1. A small company wants to have an automatic light system installed for the front door of their office building to make the premises safer for their employees. They have the following specification in mind: A light outside the front door that will turn on automatically when it is both dark outside and someone is standing on the doormat.

NOTE 1: A pressure sensor und there mat changes from **OFF (0)** to **ON (1)** when someone stands on the doormat.

NOTE 2: The light sensor is **ON (1)** when it is out out and **OFF (0)** when it is dark.

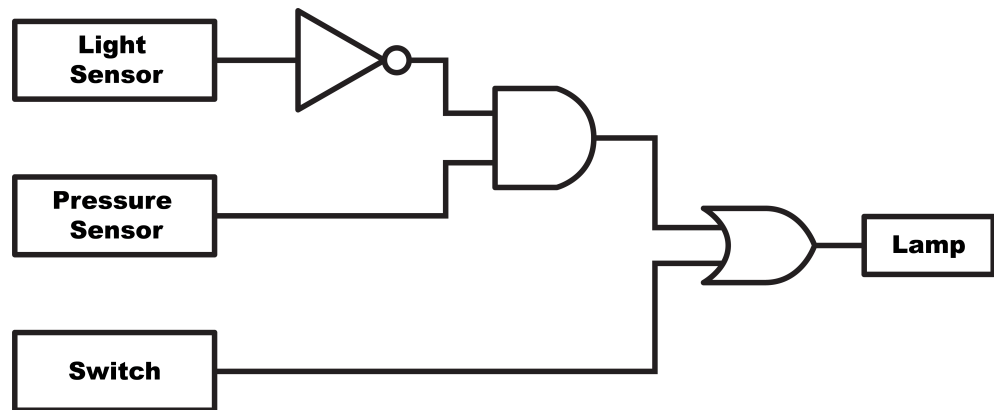


- a) When the system was first installed, light from the lamp could shine on the light sensor. What would happen when someone stood on the doormat when it was dark in this situation?

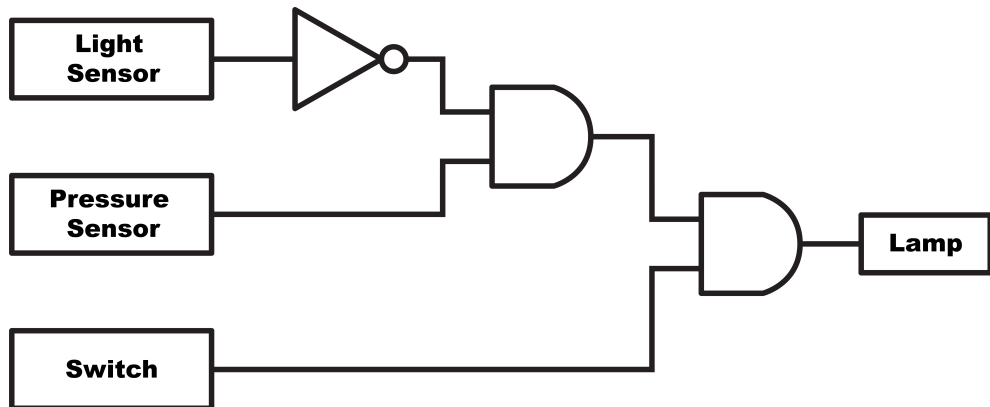
- i. Explanation:

- ii. What (simple) change(s) need to be made for this circuit to work properly?

- b) The diagrams below show two different ways of modifying this circuit by adding a switch. Each solution will produce a circuit that operates slightly differently.



- i. Explain what the switch does in this circuit.



- ii. Explain what the switch does in this circuit.
