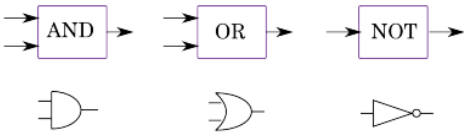
Answer on Question #62327 – Math – Discrete Mathematics

Question

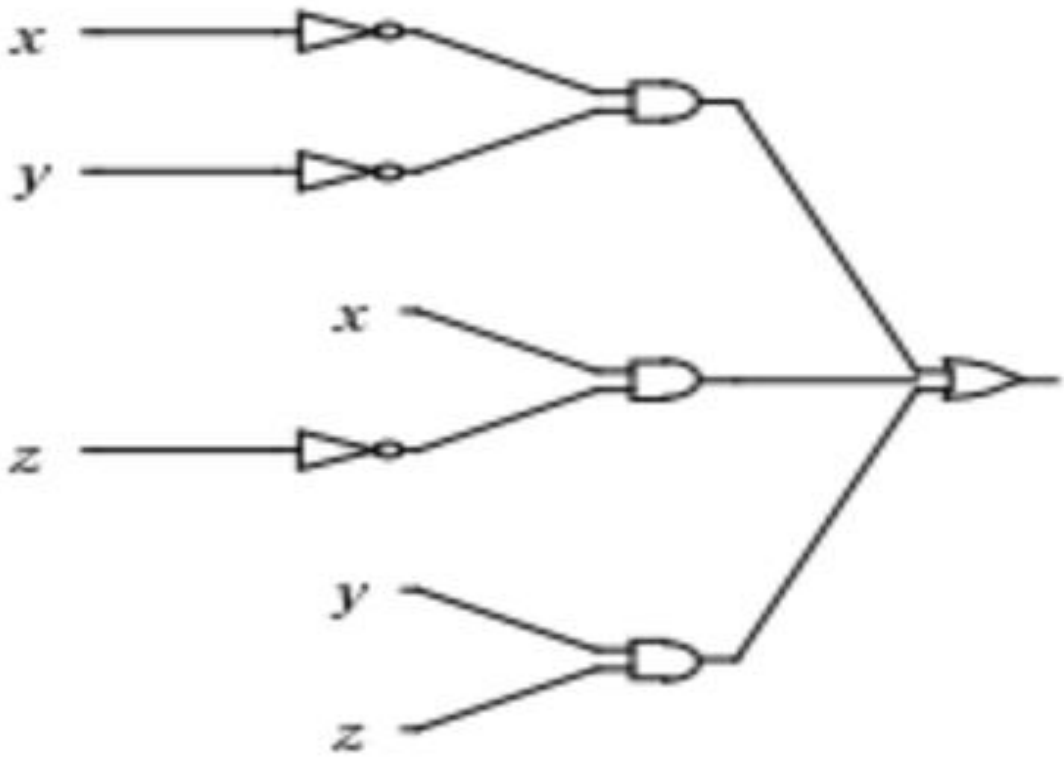
Draw both the NAND and NOR implementations of the below functions.
1) *F(x,y,z)= x'y' + xz' + yz*
2) *G(x,y,z) = (x'+ y) (x + z) (y'+ z)*

Solution

While Boolean algebra is the fundamental formal system for digital circuit designers, digital circuits are their final product. Digital circuits are similar to Boolean block diagrams but each block is replaced by an easily recognizable graphical symbol called a gate. A circuit is designed by connecting gates together. Since the gate symbols are clearly recognizable there is no need to label them AND, OR etc., and they can be composed into more complex building blocks which in turn are given their own symbols. The basic gate symbols are:



1) F(x,y,z)= x'y' + xz' + yz
F(x,y,z)=(not(x) and not(y)) or (x and not(z)) or (y and z)



2) G(x,y,z) = (x'+ y) (x + z) (y'+ z)
G(x,y,z)=(not(x) or y) and (x or z) and (not(y) or z)