1. What is Knoppix? Write at least two complete sentences.

2. Write the decimal number 230 as a bit sequence, i.e.: in binary notation. Execute the algorithm by hand and show all steps.
3. Consider the circuits drawn below:

(a) For the circuit on the left, and \( x = 1, \) \( y = 0 \) and \( z = 1, \) what is the output? Mark the results on the circuit drawing above.

(b) Write the logical expressions that represent both circuits.

(c) Use truth tables to show that both circuits are equivalent.

4. Given in a string \( s \) is a name in the format \texttt{firstname lastname}.
   Give the Python commands to make a new string \( t \), to put in the name in the format \texttt{lastname, firstname}. There are no spaces in \texttt{firstname} or \texttt{lastname}.
   For example: if \( s = \textit{"Bill Gates"} \), then the new string \( t = \textit{"Gates, Bill"} \).
5. Consider the flowchart:

(a) What does the algorithm print? Complete the table below:

<table>
<thead>
<tr>
<th>n</th>
<th>d</th>
<th>q</th>
</tr>
</thead>
</table>

(b) Write Python code for the algorithm.
6. The built-in function `exp()` of the `math` module returns $e^x$. Write a function `exponential` that has 10 as default base. If 0 is provided as base, `exponential(x,0)` returns `exp(x)`, otherwise `exponential(x,b)` returns $b**x$.

7. Give all Python commands for the following tasks. Generate a list of 150 random integer numbers, distributed uniformly in the interval $[0,10]$. Select from this list all numbers divisible by 3. Add one to all elements in the selected list.