Gate Handout #1 Answer Key

Label each of the following truth tables as an OR, AND, BUFFER, or NOT gate based on the truth table inputs and outputs by putting your answer in the box in the output column. Defend your answer using 1-4 complete sentences.

Note: All of these tables are set up from the perspective of the green trucks. Hints: Ask yourself, "Is the truck that is going in (the input) green?" "Is the truck coming out (the output) green?" Include the following terms in your explanation: 'green truck(s)', 'truck(s) that is(are) not green', 'input', and 'output'.

Truth Table #1	

Input A	Output Buffer A	When trucks that are green come in, trucks that are green come out, and when trucks that are not green come in, trucks that are not green come out. The output is the same as the input. This is BUFFER Truth Table because it shows the that things are kept the same.
Green	Green	
Red	Red	

Truth Table #2

Input A	Output NOT A
Green	Red
Red	Green

When trucks that are green come in, trucks that are not green come out. When trucks that are not green come in, trucks that are green come out. The input is the opposite of the output. Therefore, this is a NOT Truth Table.

Truth Table #3

Input A	Input B	Output A AND B
Green	Green	Green
Green	Red	Red
Red	Green	Red
Red	Red	Red

When 2 trucks that are green come in at the same time, the end product will be green. When there is 1 truck that is not green, then the output will be a truck that is not green. This is an AND Truth Table because both trucks coming in (the input) need to be green in order for the output to be green.

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Truth Table #4

Input A	Input B	Output A OR B
Green	Green	Green
Green	Red	Green
Red	Green	Green
Red	Red	Red

When 1 of the trucks coming in (the input) is green, then the end

product (the output) will be green. When the 2 trucks that are

coming in are not green, then the output truck will not be green.

This is an OR Truth Table because there needs to be at least one

green truck coming in for the output to be a green truck. And if

both trucks are not green, then the output is not green.

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