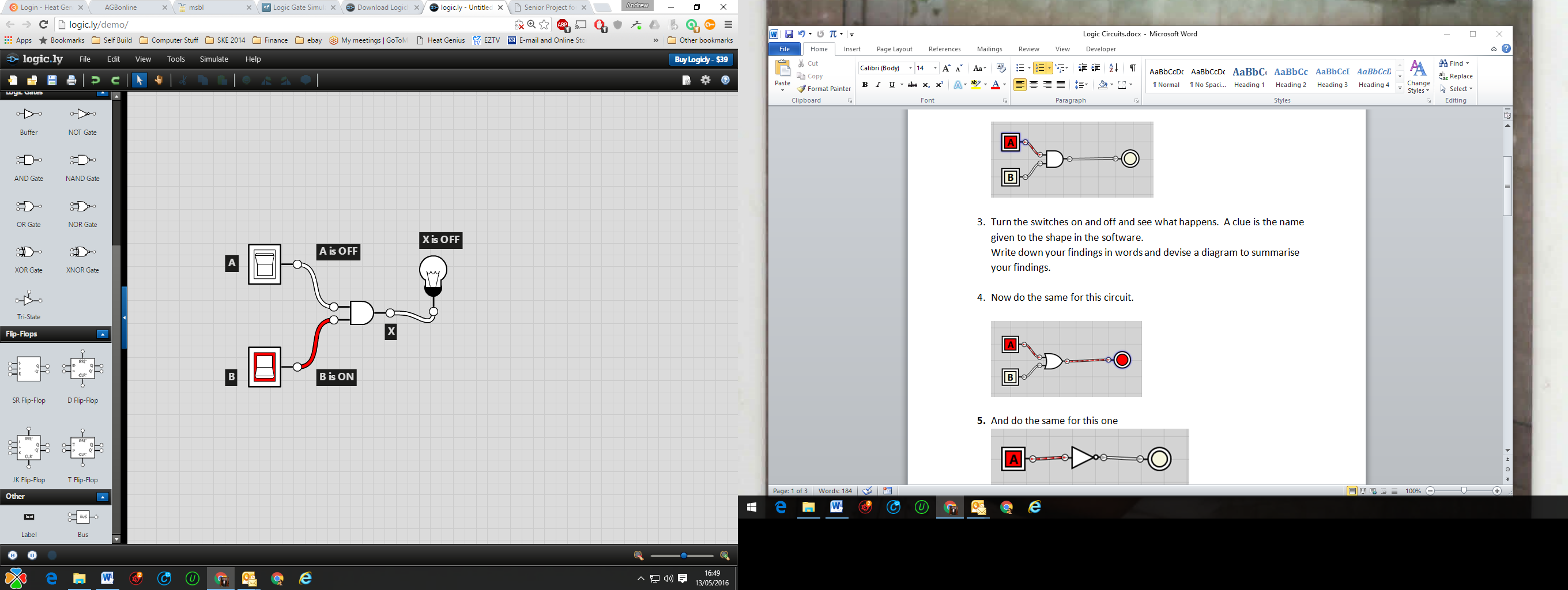
Logic Circuits

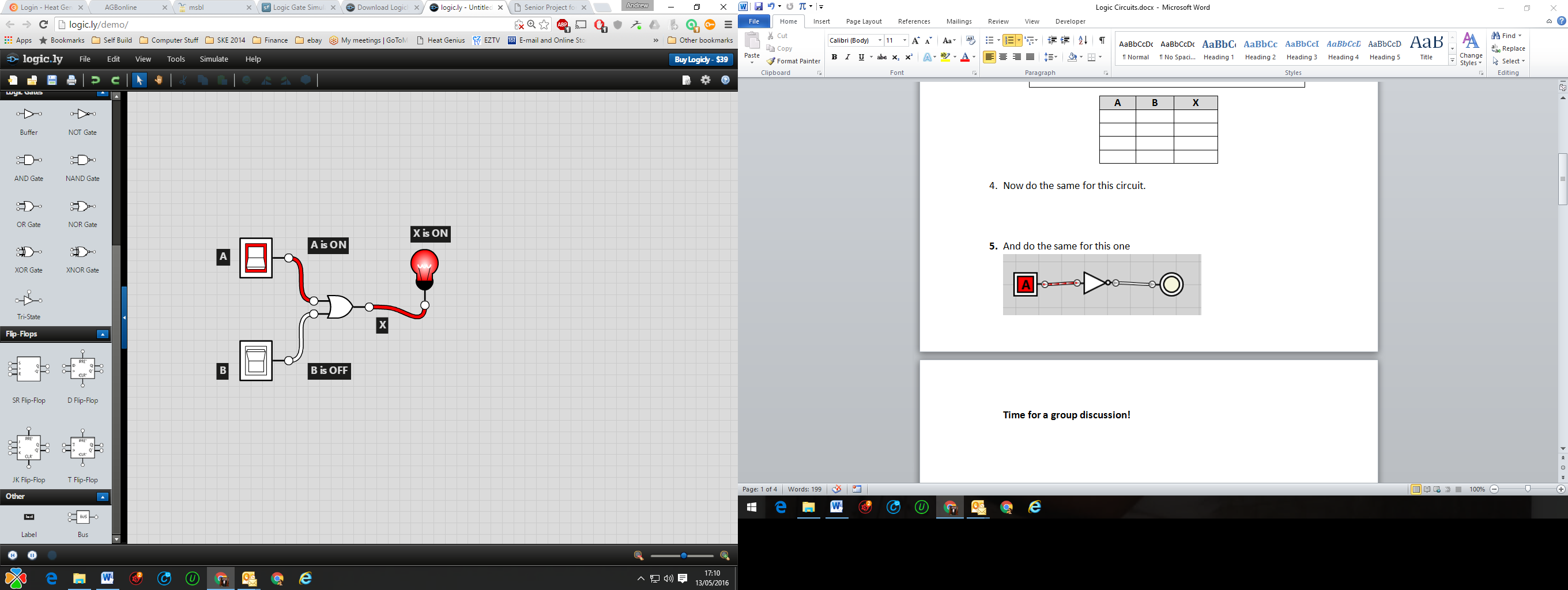
# Basics

1. A Logic Gate simulator can be downloaded from <http://logic.ly/download/> or you can use the browser version at <http://logic.ly/demo/> .
2. Create this Logic Circuit  
     
   

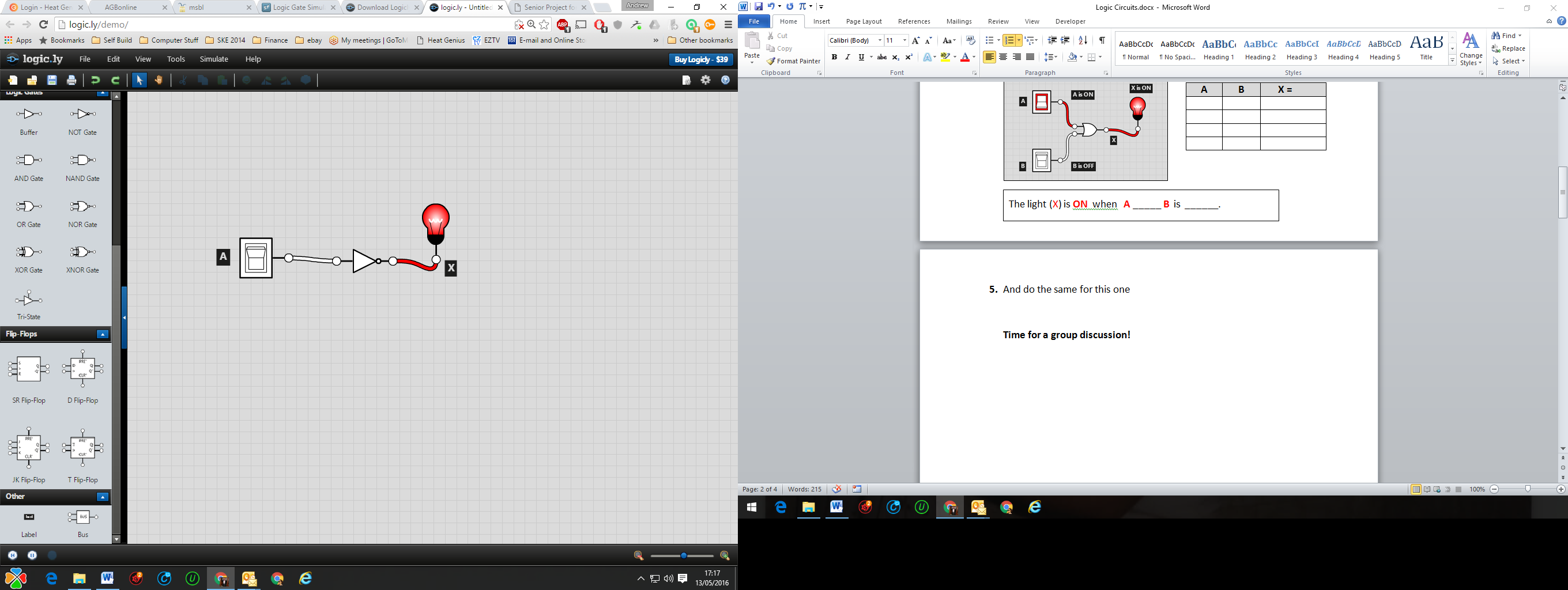
|  |  |  |
| --- | --- | --- |
| **A** | **B** | **X** |
| Off (0) | Off (0) |  |
| Off (0) | On (1) |  |
| On (1) | Off (0) |  |
| On (1) | On (1) |  |

1. Turn the switches on and off and see what happens. A clue is the name given to the shape in the software.  
   Complete the Truth Table below.

|  |  |  |
| --- | --- | --- |
| **A** | **B** | **X** |
| 0 | 0 |  |
| 0 | 1 |  |
| 1 | 0 |  |
| 1 | 1 |  |

1. Now do the same for this circuit.  
     
     
   

|  |  |
| --- | --- |
| **A** | **X** |
| 0 |  |
| 1 |  |

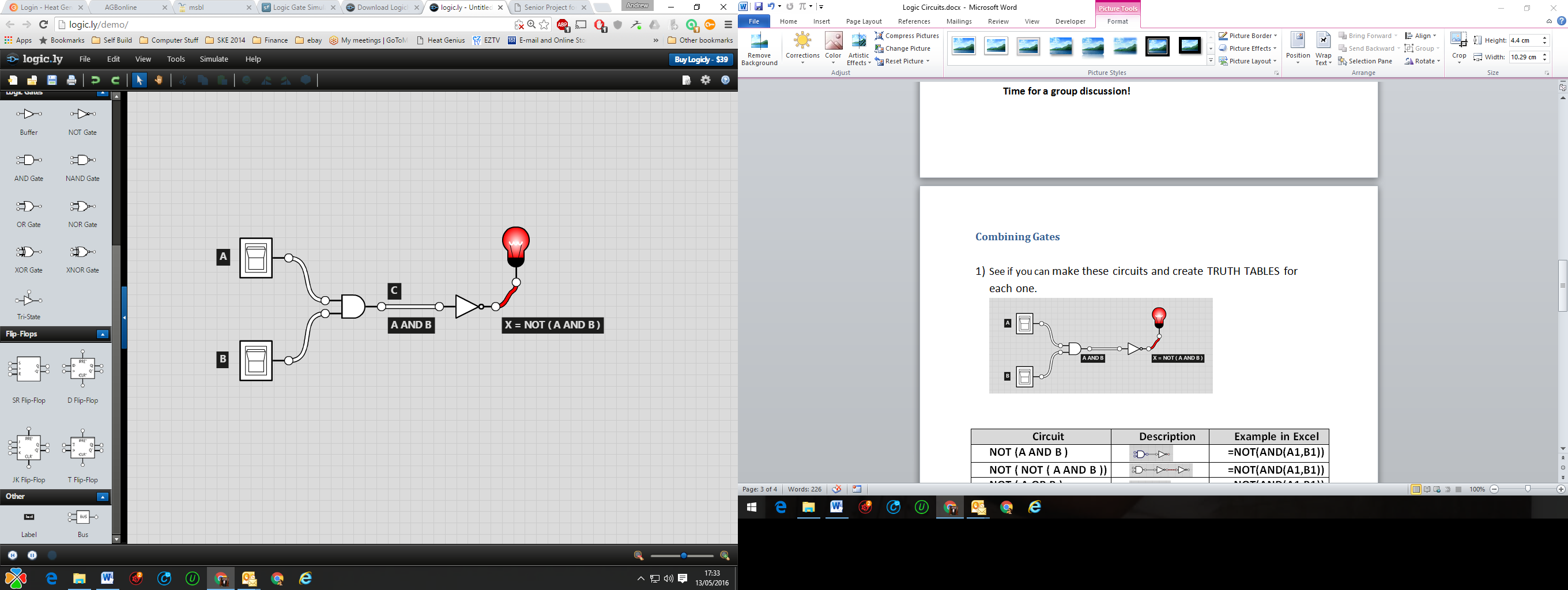
1. Do the same for this one   
     
   

|  |  |  |
| --- | --- | --- |
|  | Gate Name | Description of output |
|  |  |  |
|  |  |  |
|  |  |  |

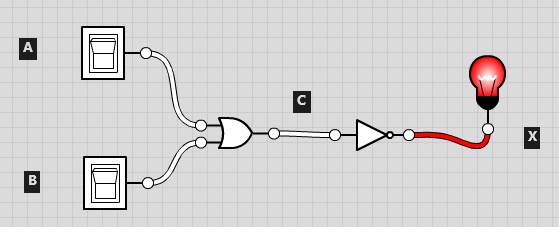
1. What are the names given to these logic gates?

# Combining Gates

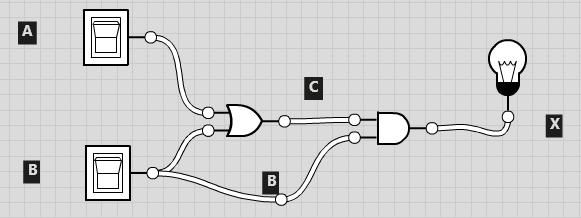
|  |  |  |  |
| --- | --- | --- | --- |
| **A** | **B** | **C** | **X =   NOT(A AND B)** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

1. Make these circuits and create TRUTH TABLES for each one.  
   

|  |  |  |  |
| --- | --- | --- | --- |
| **A** | **B** | **C** | **X =   NOT(A OR B)** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

1. 

|  |  |  |  |
| --- | --- | --- | --- |
| **A** | **B** | **C = A OR B** | **X =   (A OR B)   AND B** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

1. 

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **A** | **B** | **C = A OR B** | **D = NOT (A OR B)** | **E = NOT B** | **X = D AND E = NOT (A OR B) AND (NOT B)** |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

1. 