# C3- S2 EXERCICES

EQUALITY OF EXPRESSIONS

In these exercises a and b are Boolean: they can be True or False

1. Find if the Boolean expression is True or False for all possible values of a and b by filling in the truth table
2. Simplify the expression by removing the redundant conditions

EX-1

A and False

|  |  |
| --- | --- |
| **A** | **A and False** |
| False | False |
| True | False |

From this truth table, write the equivalence of the Boolean expression

A and False = If A is false, A and false is false. And if A is true, A and false is false

EX-2

A and True

|  |  |
| --- | --- |
| **A** | **A and True** |
| False | False |
| True | True |

From this truth table, write the equivalence of the Boolean expression

A and True = If A is false, A and true is false. But if A is true, A and true is true

EX-3

A or A or A

|  |  |
| --- | --- |
| **A** | **A or A or A** |
| False | False |
| True | True |

From this truth table, write the equivalence of the Boolean expression

A or A or A = if A is false, A or A or A is False. but If A is true, A or A or A is true

EX-4

A and A and A

|  |  |
| --- | --- |
| **A** | **A** and **A** and **A** |
| False | False |
| True | True |

From this truth table, write the equivalence of the Boolean expression

A and A and A = If A is false, A and A and A is False. But if A is true, A and A and A is true

EX-5

not ( not A)

|  |  |
| --- | --- |
| **A** | **not ( not A )** |
| False | False |
| True | True |

From this truth table, write the equivalence of the Boolean expression

**not ( not A)** = If A is false, not(not false) is false. But If A is true, not ( not A ) is True.

EX-6

not (A or B)

|  |  |  |  |
| --- | --- | --- | --- |
| **A** | **B** | **not (A or B)** | **notA and notB** |
| False | False | True | True |
| False | True | false | True |
| True | False | False | True |
| True | True | False | False |

From this truth table, write the equivalence of the Boolean expression

**not (A or B)** = It mean if A is false in not A is true