

CS 281 - PRE LAB 3

$A + (A \cdot B)$	Given
$(A \cdot 1) + (A \cdot B)$	$A = (A \cdot 1)$
$A \cdot (1 + B)$	$A \cdot (B \cdot C) = (A \cdot B) + (A \cdot C)$
$A \cdot (1)$	$A + 1 = 1$
A	$A \cdot 1 = A$

$A + \overline{A}B$	Given
$(A + \overline{A}B) + \overline{A}B$	$A = A + AB$
$A + (AB + \overline{A}B)$	$A + (B + C) = (A + B) + C$
$A + (BA + \overline{B}A)$	$A \cdot B = B \cdot A$
$A + B(A + \overline{A})$	$A \cdot (B+C) = (A \cdot B) + (A \cdot C)$
$A + B(1)$	$A + \overline{A} = 1$
$A + B$	$A \cdot 1 = A$

$\overline{A}BC + A\overline{B}C + AB\overline{C} + ABC$	Given
$BC(\overline{A} + A) + A\overline{B}C + AB\overline{C}$	$A \cdot (B+C) = (A \cdot B) + (A \cdot C)$
$BC(1) + A\overline{B}C + AB\overline{C}$	$A + \overline{A} = 1$
$BC + A\overline{B}C + AB\overline{C}$	$B \cdot 1 = B$
$B(C + A\overline{C}) + A\overline{B}C$	$A \cdot (B+C) = (A \cdot B) + (A \cdot C)$
$B(C + A) + A\overline{B}C$	$A + \overline{A} = 1$
$BC + AB + A\overline{B}C$	$A \cdot (B+C) = (A \cdot B) + (A \cdot C)$
$BC + A(B + \overline{B}C)$	$A \cdot (B+C) = (A \cdot B) + (A \cdot C)$
$BC + A(B + C)$	$A + \overline{A} = 1$
$BC + AB + AC$	$A \cdot (B+C) = (A \cdot B) + (A \cdot C)$
$AB + BC + AC$	ORGANISING

1. $((A+BC)' + (AB')')$
 $(A' \cdot B' \cdot C' + (B+A'))'$

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2. $AB+AC$ - 3 gates - 2 AND & 1 OR
 $A(B+C)$ - 2 gates - 1 AND & 1 OR

	BC			
A	0 0	0 1	1 1	1 0
0	1	1	0	1
1	1	1	0	1

Now give a simplified form for Y :

$$Y = B'C' + B'C + BC'$$