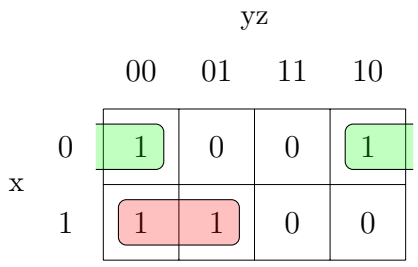
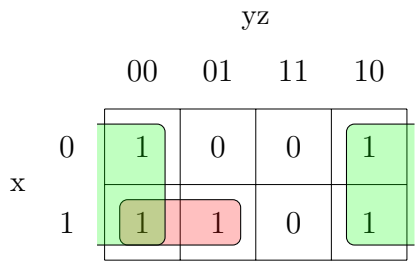
1. Simplify the following using 3-variable K-Maps:

   a. $F(x, y, z) = \sum m_{0,2,4,5}$



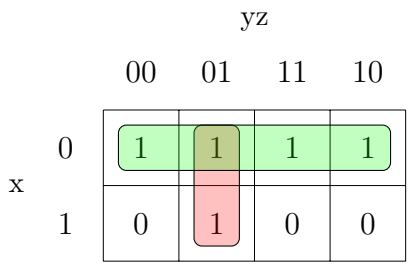
   $\therefore F = z'x' + y'x$

   b. $F(x, y, z) = \sum m_{0,2,4,5,6}$



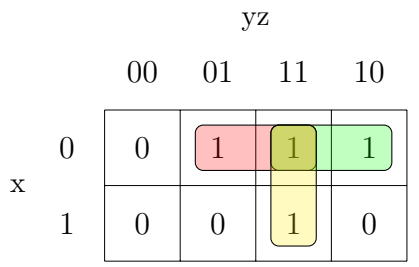
   $\therefore F = z' + y'x$

   c. $F(x, y, z) = \sum m_{0,1,2,3,5}$



   $\therefore F = x' + y'z$

   d. $F(x, y, z) = \sum m_{1,2,3,7}$

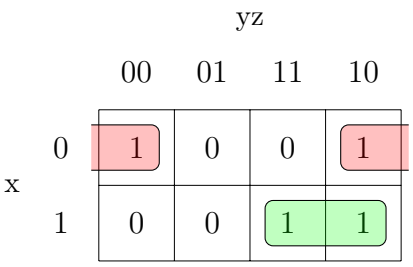


   $\therefore F = x'y + x'z + yz$

2. Simplify the following using 3-variable K-Maps:

   a. $F = xy + x'y'z' + x'yz'$

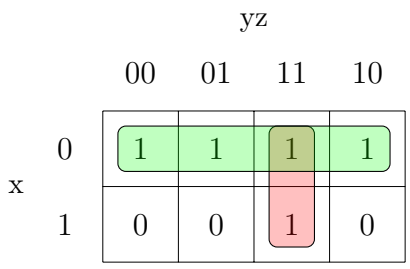
x	y	z	xy	$x'y'z'$	$x'yz'$	F	#
0	0	0	0	1	0	1	0
0	0	1	0	0	0	0	1
0	1	0	0	0	1	1	2
0	1	1	0	0	0	0	3
1	0	0	0	0	0	0	4
1	0	1	0	0	0	0	5
1	1	0	1	0	0	1	6
1	1	1	1	0	0	1	7



   $\therefore F = x'z' + xy$

b. $F = x'y' + yz + x'yz'$

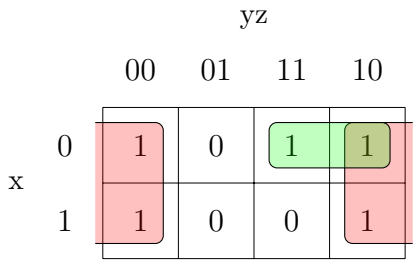
x	y	z	$x'y'$	yz	$x'yz'$	F	#
0	0	0	1	0	0	1	0
0	0	1	1	0	0	1	1
0	1	0	0	0	1	1	2
0	1	1	0	1	0	1	3
1	0	0	0	0	0	0	4
1	0	1	0	0	0	0	5
1	1	0	0	0	0	0	6
1	1	1	0	1	0	1	7



$\therefore F = yz + x'$

c. $F = x'y + yz' + y'z'$

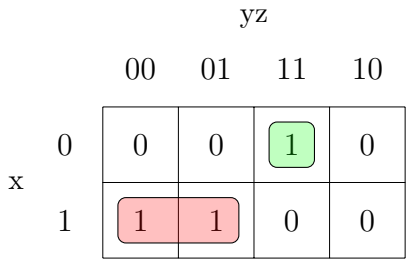
x	y	z	$x'y$	yz'	$y'z'$	F	#
0	0	0	0	0	1	1	0
0	0	1	0	0	0	0	1
0	1	0	1	1	0	1	2
0	1	1	1	0	0	1	3
1	0	0	0	0	1	1	4
1	0	1	0	0	0	0	5
1	1	0	0	1	0	1	6
1	1	1	0	0	0	0	7



$\therefore F = z' + x'y$

d. $F = x'yz + xy'z' + xy'z$

x	y	z	$x'yz$	$xy'z'$	$xy'z$	F	#
0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	1
0	1	0	0	0	0	0	2
0	1	1	1	0	0	1	3
1	0	0	0	1	0	1	4
1	0	1	0	0	1	1	5
1	1	0	0	0	0	0	6
1	1	1	0	0	0	0	7



$\therefore F = xy' + x'yz$