

Karnaugh Maps: Simplify the Boolean Function (POS)

(see p. 98 - textbook example)

$F(x,y,z) = \Pi(0,2,5,7)$ <-means put 0's in grid filling with binary pattern from a truth table.

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

$x' y' z'$	000	0
$x' y' z$	001	1
$x' y z'$	010	2
$x' y z$	011	3
$x y' z'$	100	4
$x y' z$	101	5
$x y z'$	110	6
$x y z$	111	7

x row, yz column

Same ordering as above	$y=0, z=0$	$y=0, z=1$	$y=1, z=1$	$y=1, z=0$
$x=0$	0	1	1	0
$x=1$	1	0	0	1

Then, use 1's Grouping Rules on the grid for the zeros this time:

Same ordering as above	$y=0, z=0$	$y=0, z=1$	$y=1, z=1$	$y=1, z=0$
$x=0$	0	1	1	0
$x=1$	1	0	0	1

Simplified using K-map: $(x' + z')(x + z)$