

Name: Answer

Instructions: Answer all questions. Do NOT use any notes, book or calculator and show all work using back of page if necessary. Clearly indicate the final answer on the front of the page.

1) (10 points) Find the minterms associated with the following Boolean equations by drawing their corresponding Karnaugh maps.

a) $F = W' \cdot X + W \cdot (Y' + Z) = W' \cdot X + W \cdot Y' + W \cdot Z$

b) $G = (W + Z)' \cdot (X' \cdot Y)'$

a)

		- W -				
	YZ	00	01	11	10	
Y	00		1	1	1	Z
	01		1	1	1	
	11		1	1	1	
	10		1			
		- X -				

$F = \sum_{WXYZ} (4, 5, 6, 7, 8, 9, 11, 12, 13, 15)$

$W \cdot Y'$
 $W \cdot Z$
 $W' \cdot X$

b) $G = (W + Z)' \cdot (X' \cdot Y)'$
 $= (W' \cdot Z') \cdot (X + Y)$
 $= W' \cdot X \cdot Z' + W' \cdot Y \cdot Z'$

b)

		- W -				
	YZ	00	01	11	10	
Y	00		1			Z
	01					
	11					
	10	1	1			
		- X -				

$F = \sum_{WXYZ} (2, 4, 6)$

$W' \cdot Y \cdot Z'$
 $W' \cdot X \cdot Z'$