

Prime implicant	Minterm							
	0	4	8	10	11	12	13	15
$p_1 = 1\ 0\ x\ 0$			✓	✓				
$p_2 = 1\ 0\ 1\ x$				✓	✓			
$p_3 = 1\ 1\ 0\ x$						✓	✓	
$p_4 = 1\ x\ 1\ 1$					✓			✓
$p_5 = 1\ 1\ x\ 1$							✓	✓
$p_6 = x\ x\ 0\ 0$	✓	✓	✓			✓		

(a) Initial prime implicant cover table

Prime implicant	Minterm			
	10	11	13	15
$p_1$	✓			
$p_2$	✓	✓		
$p_3$			✓	
$p_4$		✓		✓
$p_5$			✓	✓

(b) After the removal of essential prime implicants

Prime implicant	Minterm			
	10	11	13	15
$p_2$	✓	✓		
$p_4$		✓		✓
$p_5$			✓	✓

(c) After the removal of dominated rows

Figure 4.37. Selection of a cover.

Prime implicant	Minterm							
	0	2	5	6	7	8	9	13
$p_1 = 0\ 0\ x\ 0$	✓	✓						
$p_2 = 0\ x\ 1\ 0$		✓		✓				
$p_3 = 0\ 1\ 1\ x$				✓	✓			
$p_4 = x\ 0\ 0\ x$	✓						✓	✓
$p_5 = x\ x\ 0\ 1$			✓				✓	✓
$p_6 = 1\ x\ 0\ x$							✓	✓
$p_7 = x\ 1\ x\ 1$			✓		✓			✓

(a) Initial prime implicant cover table

Prime implicant	Minterm					
	0	2	5	6	7	8
$p_1 = 0\ 0\ x\ 0$	✓	✓				
$p_2 = 0\ x\ 1\ 0$		✓		✓		
$p_3 = 0\ 1\ 1\ x$				✓	✓	
$p_4 = x\ 0\ 0\ x$	✓					✓
$p_5 = x\ x\ 0\ 1$			✓			
$p_6 = 1\ x\ 0\ x$						✓
$p_7 = x\ 1\ x\ 1$			✓		✓	

(b) After the removal of columns 9 and 13

Prime implicant	Minterm					
	0	2	5	6	7	8
$p_1$	✓	✓				
$p_2$		✓		✓		
$p_3$				✓	✓	
$p_4$	✓					✓
$p_7$			✓		✓	

(c) After the removal of rows  $p_5$  and  $p_6$

Prime implicant	Minterm	
	2	6
$p_1$	✓	
$p_2$	✓	✓
$p_3$		✓

(d) After including  $p_4$  and  $p_7$  in the cover

Figure 4.39. Selection of a cover.

Prime implicant	Minterm			
	0	3	10	15
$p_1 = 0\ 0\ x\ x$	✓	✓		
$p_2 = x\ 0\ x\ 0$	✓		✓	
$p_3 = x\ 0\ 1\ x$		✓	✓	
$p_4 = x\ x\ 1\ 1$		✓		✓
$p_5 = 1\ x\ 1\ x$			✓	✓

(a) Initial prime implicant cover table

Prime implicant	Minterm	
	0	15
$p_1$	✓	
$p_2$	✓	
$p_4$		✓
$p_5$		✓

(b) After including  $p_2$  in the cover

Prime implicant	Minterm			
	0	3	10	15
$p_1$	✓	✓		
$p_2$	✓		✓	
$p_4$		✓		✓
$p_5$			✓	✓

(c) After excluding  $p_2$  from the cover

Figure 4.40. Selection of a cover for the function in Figure 4.15.