SARA KAZEMI

aug (sept) oct nov dec june july jan feb mar apr may 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 Operation Symbol Precedence Exercises 5.2 . NOT . Highes OF Lowest Prove the identity property expressed 7 and. X+0=X1 ストソナロ X=XTO 1 0 = 00 +0=0 0 =6 Prove the commutative property expressed by: and x+y=y+xU·X. X-4=4.X X+4 4+× X+4=4+x 0=0 0.0=0 0.0=0 0+0=0 0 +0=0 0 = 0 1=0 1.0=0 0 -.0 0+1=1 11-10-1 0=0 D.01=0 0=0 1+0=1 10+1=1 0=0 11 -1 =1 1=1 11+1=1 Amulment law- a term. AND'ed with a & equality ce term OR'ed with a lequals 国 the annulment property expressed by X-0 =0 and x +1=1 7.0  $\chi \cdot \emptyset = \emptyset$ X+1 2+1=1 0.000 Ø=Ø Ox +1=1 1.0=0

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4. Prove the complement property expressed by	
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$\frac{2}{0 \cdot 1 \cdot 0 \cdot 1 = 0} \cdot 0 = 0$ $\frac{0}{0 \cdot 1 \cdot 0 \cdot 1 = 0} \cdot 0 = 0$	
5. Prove the idempotent property expressed by:	
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6. Prove the distributive property expressed by	
X. (y+z) = x. o. y + x. o. z	2)
X y Z y+Z (x:(y+z)   x y x · z   x · y + x · z	
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contid on next	- 5

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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 28 26 27 28 29 30 31  (c. (contid))  Prove the distributive poperty expressed by  X + u + z = (x + u) = (x + z)  (c. (contid))  Prove the distributive poperty expressed by  X + u + z = (x + u) = (x + z)  (c. (contid))    2   40 z   x + y = z   1x + z	jan feb mar apr may june july aug sept oct nov dec
(c. (control)  Prove the distributive property expressed by  X + u + z = (x + y) = (x + z)  X + u + z = (x + y) = (x + z)  X + u + z = (x + y) = (x + y) = (x + z)  X + u + z = (x + y) = (x + y) = (x + z)  X + u + z = (x + y) = (x + y) = (x + z)  X + u + z = (x + y) = (x + z)  X + u + z = (x + y) = (x + z)  X + u + z = (x + y) = (x + z)  X + u + z = (x + y) = (x + z)  X + u + z = (x + y) = (x + z)  X + u + z = (x + y) = (x + z)  X + u + z = (x + y) = (x + z) = (x + z)  X + u + z = (x + y) = (x + z) = (x + z)  X + u + z = (x + z) = (x + z) = (x + z) = (x + z)  X + u + z = (x + z)  X + u + u + u + u  X +	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Prove the distributive apperty expressed by  X + y = Z   y + Z   x + y - z     x + y   y + Z	
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X y 2   10 0	Prove the distributive property expressed by
X y 2   10 0	$\chi + 11/07 = (v + 1) = (v + 1)$
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0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	37.10.71(17.17.2)
0 0 1 0.1=0.0+0=0 0+0=0 0+1=1 0.1=0.0=0  0 1 0 100=0 0+0=0 0+1=1 0+0=0 1.0=0 0=0  0 1 1 .1=1=1 0+1=1 0+1=1 0+1=1 1=1 1=1  1 0 0 100=0 1+0=1 1+0=1 1+0=1 1.1=1 1=1  1 0 1 0.0=0 1+0=1 1+0=1 1+1=1 1.1=1 1=1  1 1 0 1.0=0 1+0=1 1+0=1 1+1=1 1.1=1 1=1  1 1 0 1.0=0 1+0=1 1+0=1 1+1=1 1.1=1 1=1  1 1 1 0 1.0=0 1+0=1 1+1=1 1+1=1 1.1=1 1=1  Exercise 5-4  1. Show that the following equations represent the same functionality is, that the sum of minterns = product of maxterns are complementary.  5.31  F(x,y,z) = (x+y'+z) · (x+y'+z') · (x'+y+z) · (x'+y+z')  = M_2 · M_3 · M_4 · M_7  = M(2,3+7)  Eq. 5.32  F(x,y,z) = (x',y',z) + (x',y',z) + (x',y',z) + (x',y',z')  = M_2 · M_3 · M_4 · M_7  = M(2,3+7)  Eq. 5.32  F(x,y,z) = (x',y',z) + (x',y',z) + (x',y',z') + (x',y',z')  = M_3 · M_3 · M_4 · M_7  = M(0) 1 5 (1)  x y z F(xy,z) = (0) 1.5 (2) F(x,y,z) = T(2,3,4,7)  = 0 = x' o y' o z' - y' M_3 o to to to z) x + y' + z' - y' M_3 (0) 1.1 · 1 · 1 · 1 · 1  a 1 0 x o y' o z' - y' M_3 o to to to z) x + y' + z' - y' - z' M_3 (1.0 · 1.7 · 0)  y o y' o z' - y' M_3 o to to to z) x + y' + z' - y' - z' M_3 (1.0 · 1.7 · 0)  y o y' o z' - y' M_3 o to to to z) x + y' + z' - z' M_3 (1.0 · 1.7 · 0)  y o y' o z' - y' M_3 o to to to z) x + y' + z' - z' M_3 (1.0 · 1.7 · 0)  y o y' o z' - y' M_3 o to to to z) x + y' + z' - z' M_3 (1.0 · 1.7 · 0)  y o y' o z' - y' M_3 o to to to z) x + y' + z' - z' M_3 (1.0 · 1.7 · 0)  y o y' o z' - y' M_3 o to to to z) x + y' + z' - z' M_3 (1.0 · 1.7 · 0)  y o y' o z' - y' M_3 o to to to z) x + y' + z' - z' M_3 (1.0 · 1.7 · 0)  y o y' o z' - y' M_3 o to to to z) x + y' + z' - z' M_3 (1.0 · 1.7 · 0)  y o y' o z' - y' M_3 o to to to z) x + y' + z' - z' M_3 (1.0 · 1.7 · 0)  y o y' o z' - y' M_3 o to to to z) x + y' + z' - z' M_3 (1.0 · 1.7 · 0)  y o y' o z' - y' M_3 o to to to z) x + y' + z' - z' M_3 (1.0 · 1.7 · 0)  y o y' o z' - y' M_3 o to to z) x + y' + y' - z' M_3 (1.0 · 1.7 · 0)  y o y' o z' - y' M_3 o to z + y' - z' M_3 (1.0 · 1.7 · 0)	0 0 0 0000 0000 0000 0000 000 000
	0 0 1 001=0 0+0=0 0+0=0 0+1=1 0.1=0.0=0
1:00 0 100000 1 +0=1 1+0=1 1+0=1 1.1=1 1=1  1:00 10000 1 +0=1 1+0=1 1+1=1 1.1=1 1=1  1:10 10000 1 +0=1 1+1=1 1+0=1 1.1=1 1=1  1:10 10000 1 +0=1 1+1=1 1+0=1 1.1=1 1=1  1:11 1 1.1=1 1+0=1 1+1=1 1+1=1 1.1=1 1=1  Exercise 5-4  1. Show that the following equations represent the same functionality, is, that the sum of minterms 3 product of maxterms are complementary.	
Eq. 5.31  Eq. (2, 3, 4, 7)  Eq. (3, 4, 2) = (x + y' + z') + (x' +	
Exercise 5-4  1. Show that the following equations represent the same functionality, is, that the sum of minterms 3 product of maxterms are complementary.  1. Show that the following equations represent the same functionality, is, that the sum of minterms 3 product of maxterms are complementary.  1. Show that the following equations represent the same functions of minterms 3 product of maxterms are complementary.  1. Show that the following equations represent the same functions of minterms 3 product of maxterms are complementary.  1. Show that the following equations represent the same functions of maxterms 5 are complementary.  1. Show that the following equations represent the same functions of maxterms 5 are complementary.  1. Show that the following equations represent the same functions of maxterms 5 are complementary.  1. Show that the following equations represent the same functions of maxterms 5 are complementary.  1. Show that the following equations represent the same functions of maxterms 5 are complementary.  1. Show that the following equations represent the same functions of maxterms 5 are complementary.  1. Show that the following equations represent the same functions of maxterms 5 are complementary.  1. Show that the following equations represent the same functions of maxterms 5 are complementary.  1. Show that the following equations represent the same functions of maxterms 5 are complementary.  1. Show that the following equations represent the same functions of maxterms 5 are complementary.  1. Show that the same functions is the function of the same functions of the functi	
Exercise 5-4  1. Show that the following equations represent the same functionality, is, that the sum of minterns 3 poster of maxterns are complementary.  1. Show that the following equations represent the same functionality, is, that the sum of minterns 3 poster of maxterns are complementary.  1. Show that the following equations represent the same functions of minterns 3 poster of maxterns are complementary.  1. Show that the following equations represent the same functions are minterns 3 poster of maxterns 5 and functions are minterns 5 and functions 6 and functions 6 and functions 6 and functions 7 and functions 6 and functions 7 and function	
Exercise 5-4  1. Show that the following equations represent the same functionality is, that the sum of minterns 3 product of maxterns are complementary.  =1. 5.31  =1. 5.31  =1. 5.3.2  =	
1. Show that the following equations represent the same functionality, ie, that the sum of minterns 3 product of maxterns are complementary.  =q. 5.31  =(x + y' + z) · (x + y' + z') · (x' + y + z')  =M2 · M3 · M4 · M4  =M(2, 3, 4, 7)  Eq. 5.3.2  =(x, y, z) = (x' · y' · z) + (x' · y' · z) + (x · y' · z) + (x · y · z')  =M2 · M3 · M4 · M4  =M(2, 3, 4, 7)  Eq. 5.3.2  =(x, y, z) = (x' · y' · z) + (x' · y' · z) + (x · y · z')  =M3 · M4 · M4 · M4  =5 (0 1, 5 (a)  x y   z   F(xy z) = (0, 1) 5 (a)  x y   z   F(xy z) = (0, 1) 5 (a)  x y   x   y   x   y · y · z   y · y · y · y · y · y · y · y · y · y	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1. Show that the following equations represent the same functionality, ie, that the sum of minterns 3 product of marterns are complementary.  1. 5.31  F(x,y,z) = (x + y' + z) · (x + y' + z') · (x' + y + z) · (x' + y' + z')  = Mz · Mz · Mz · Mz  = M(2, 3 · 4 7)  Eq. 5.3.2  F(x,y,z) = (x' · y' · z') + (x' · y' · z) + (x · y · z')  = Mz · Mz · Mz · Mz  = M(2, 3 · 4 7)  Eq. 5.3.2  F(x,y,z) = (x' · y' · z') + (x' · y' · z) + (x · y · z')  = Mz · + Mz · + Mz  = 5'(0 !, 5 (a)  x y z   F(x,y,z) = (x (a), 1, 5) (a)   F(x,y,z) = T(2,3,4,7)  = 0   x' · y' · z' - x' · Mz · y' · z' · x' · x' · x' · x' · x'  = 0   x' · y' · z' - x' · Mz · y' · z' · x' · x' · x'  y   x   x   x   x   x   x   x   x   x	- Ev-
functionality, ie, that the sum of minterns are complementary.	Treverse 2-9
functionality, ie, that the sum of minterns are complementary.  F(x,y,z) = (x+:y'+z) · (x+y'+z') · (x'+y+z) · (x'+y+z')  =M2 · M · M · M  =M(2,3,4,7)  Eq. 5.3.1  F(x,y,z) = (x',y',z) + (x',y',z) + (x,y',z) + (x+y,z')  =M2 · M · M  =M(2,3,4,7)  Eq. 5.3.1  F(x,y,z) = (x',y',z) + (x',y',z) + (x,y',z) + (x+y,z')  =M2 · M · M  = 5 (0 !, 5 (a)  x y z F(x,y,z) = 2 (0), 1, 5 (a)  x y z F(x,y,z) = 2 (0), 1, 5 (a)  x y z F(x,y,z) = 2 (0), 1, 5 (a)  x y z F(x,y,z) = 2 (0), 1, 5 (a)  x y z F(x,y,z) = 17 (2,3,4,7)  x z F(x,y,z) = 17 (2,3,4,7)  x y z F(x,y,z) = 17 (2,3,4,7)  x z F(x,y,z) = 17 (2,3,4,7)  x z F(x,y,z) = 17 (2,3,4,7)  x z F(x,y,z) = 17 (2,3,4,	1. Show that the following equations represent the same
$F(x,y,z) = (x+y'+z) \cdot (x+y'+z') \cdot (x'+y+z) \cdot (x'+y+z')$ $= M_2 \cdot M_3 \cdot M_4 \cdot M_7$ $= M(2,3,4,7)$ $Eq. 5.3.2$ $F(x,y,z) = (x',y',z) + (x',y',z) + (x,y',z') + (x,y',z')$ $= M_3 \cdot M_4 \cdot M_7 \cdot M$	Gonton Other is what the sime of mintern 5 3 product of
$F(x,y,z) = (x + y' + z) \cdot (x + y' + z') \cdot (x' + y + z')$ $= M_2 \cdot M_3 \cdot M_4$ $= M(2,3,4,7)$ $F(x,y,z) = (x' \cdot y' \cdot z) + (x' \cdot y' \cdot z) + (x \cdot y' \cdot z) + (x \cdot y' \cdot z')$ $= M_3 \cdot M_4 \cdot M_4$ $F(x,y,z) = (x' \cdot y' \cdot z') + (x' \cdot y' \cdot z) + (x \cdot y' \cdot z') + (x \cdot y' \cdot z')$ $= M_3 \cdot M_4 \cdot M_4$ $F(x,y,z) = (x' \cdot y' \cdot z') + (x' \cdot y' \cdot z') + (x \cdot y' \cdot z') + (x \cdot y' \cdot z')$ $= M_3 \cdot M_4 \cdot M_5 \cdot M_6 \cdot M_6 \cdot M_7 \cdot M_$	mando are complementary
$F(x,y,z) = (x+y'+z) \cdot (x+y'+z') \cdot (x'+y+z) \cdot (x'+y+z')$ $= M_2 \cdot M_3 \cdot M_4 \cdot M_7$ $= M(2,3+7)$ $F(x,y,z) = (x'\cdot y'\cdot z) + (x'\cdot y'\cdot z) + (x\cdot y'\cdot z) + (x\cdot y'\cdot z') + (x\cdot y'\cdot z')$ $= M_3 \cdot M_4 \cdot M_7 \cdot $	En. 5,31
00 1 X'0 y'0 Z -> M, O+14040=1 X + y + Z' -> M, 1-1-1-1-1  20 1 0 X'-0 y 6z' -> M2. U+0 +0 +0 +0 X + y' + Z -> M2 1 0 -1 -1 -1 -0  10 1 X 0 y 0 Z -> M3 0+0 +0 +0 X + y' + Z' = M2 1 -0 -1 -1 = 0  10 1 X 0 y'0 Z' -> M, O+0 +0 +0 X + y' + Z' = M2 1 -1 -1 -1 -1 -1  10 1 X 0 y'0 Z' -> M 0+0 +0 +0 = 0 X' + Y + Z' = M2 1 -1 -1 -1 -1 -1	F(x, u, z) = (x+:4'+2) · (x+4'+2') · (x'+4+2) · (x'+4+2')
00 1 X'0 y'0 Z -> M, O+14040=1 X + y + Z' -> M, 1-1-1-1-1  20 1 0 X'-0 y 6z' -> M2. U+0 +0 +0 +0 X + y' + Z -> M2 1 0 -1 -1 -1 -0  10 1 X 0 y 0 Z -> M3 0+0 +0 +0 X + y' + Z' = M2 1 -0 -1 -1 = 0  10 1 X 0 y'0 Z' -> M, O+0 +0 +0 X + y' + Z' = M2 1 -1 -1 -1 -1 -1  10 1 X 0 y'0 Z' -> M 0+0 +0 +0 = 0 X' + Y + Z' = M2 1 -1 -1 -1 -1 -1	= M2 · M · M · M ·
00 1 $\times'$ 0 $\times'$ 0 $\times'$ 2 $\times$	= T(2, 3,4,7)
00 1 X'0 y'0 Z -> M O+140 +0 =1 X + y + Z' -> M 1-1-1-1-1  20 1 0 X'-0 y 6z' -> M2. 0+0 +0 +0 >0 X + y'-1-Z' - M2 1-0-1-1-0  10 1 X'0 y'0 Z' -> M3 0+0 +0 +0 >0 X + y'-1-Z' - M2 1-0-1-1-0  10 1 X 0 y'0 Z' -> M O+0 +0 +0 >0 X'+ y + Z' -> M 1-1-1-1-1-1  10 1 X 0 y'0 Z' -> M 50+0 +0 =0 X'+ y'-1-Z' -> M 5 1-1-1-1-1-1	E 537
00 1 X'0 y'0 Z -> M, O+14040=1 X + y + Z' -> M, 1-1-1-1-1  20 1 0 X'-0 y 6z' -> M2. U+0 +0 +0 +0 X + y' + Z -> M2 1 0 -1 -1 -1 -0  10 1 X 0 y 0 Z -> M3 0+0 +0 +0 X + y' + Z' = M2 1 -0 -1 -1 = 0  10 1 X 0 y'0 Z' -> M, O+0 +0 +0 X + y' + Z' = M2 1 -1 -1 -1 -1 -1  10 1 X 0 y'0 Z' -> M 0+0 +0 +0 = 0 X' + Y + Z' = M2 1 -1 -1 -1 -1 -1	F(x 1, 2) = (x'. y'. z') + (x'-y'. z) + (x - y'. oz) + (x + y - z')
00 1 $\times'$ 0 $\times'$	= M + m + m
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	=5(0.1,56)
00 1 $\times'$ 0 $\times'$	x 19 2 F(x9,2)=&(0,1,5,6) P(x,4,2)=1 +2,2,4, +)
$\frac{1}{2}$ $\frac{1}$	\$1000 0 10 100 y 02 -> MO 101010=1/X+4+2 -> MO 1-1-1-1=1
10 1 1 X o. y o. z -> M3 otototozo X+1/1+2/1M7 1.0.1.10 10 0 X o. y o. z -> M, otorotozo X+ y + z = M, 1.1.1-0.1.20 10 1 X o. y o. z -> M, otorotozo X+ y + z = M, 1.1.1-0.1.20	0 0 1 1 X'0402 -> MY, 0+140+0=1 X +4+2 >M, 1-1.1.1-1
100 x 0 y'0 2' > m, 0+0, 10+0, 10 x + x + Z = M; 1.1.1-0.1-0	10 1X'-8 y 62' > M2. 040 toto toto X+W+Z-M2 0
10 1 × 2. y'a 2 > [M 5 10+01+0=0 X + Y + Z' = ME 131.1-121	101/1/ XONOZ -> M2 Otototo20 X+11-12 - 1.0.1.7=0
1011 x 2. y/2 2 3 [M sototto=0 1 + 1 + 12 = M5 121.1-121	1000 y's u's >/ > m. O+010+070 W+ 1 + 2 - 5 M. 1.1.1-0.1:0
1 1 0 X o y o Z > (M. ) 0+0+041, X' + y' + Z = [M. 1.1.1.1=1]  / / / / / / X o y o Z > (M. ) 0+0+041, X' + y' + Z = [M. 1.1.1.1=1]	
11/1 X & y' 0 Z 9 My OKCPOPO X'+ Y 1 + 2 = MT 1.1.1.0=	11/0 x 0 40 7 -3(M. ) 0+040412 N + 11/+2 = 1/4 11/11/11/11
A TOTAL TOTAL	1 1 X & 12 10 7 W margared V' + NV + 7) - 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
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