Solutions to Problems Marked with a * in
Logic and Computer Design Fundamentals, 4th Edition

Chapter 9

9-2.*

$C = C_8$

$V = C_8 \oplus C_7$

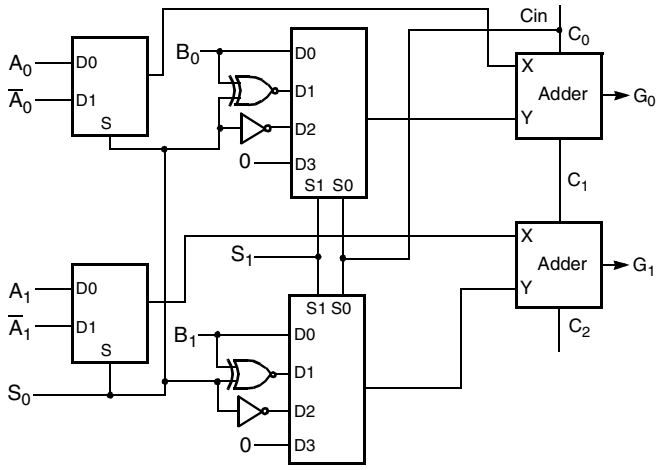
$Z = \overline{F_7 + F_6 + F_5 + F_4 + F_3 + F_2 + F_1 + F_0}$

$N = F_7$

9-3.*

$X = S_0\overline{A} + \overline{S}_0 A$

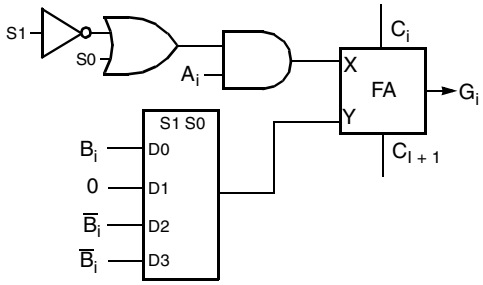
$Y = \overline{S}_1 \overline{C}_{in} B + \overline{S}_1 S_0 B + \overline{S}_1 \overline{S}_0 \overline{B} + S_1 \overline{S}_0 \overline{C}_{in}$



9-4.* (Errata: Delete "1" after problem number)

$X = A\,\overline{S1} + A\,S0$

$Y = B\,\overline{S1}\,\overline{S0} + \overline{B}\,S_1$



9-6.*

a) XOR = 00, NAND = 01, NOR = 10 XNOR = 11

Out = $S_1\,\overline{A}\,\overline{B} + \overline{S}_1 \overline{A} B + \overline{S}_1 A \overline{B} + S_1 S_0 AB$ + (one of $S_0\,\overline{A}\,\overline{B} + \overline{S}_1\,S_0\,\overline{A}$)

b) The above is a simplest result.

9-8.*

(a) 1010 (b) 1110 (c) 0101 (d) 1101

9-10.*

(a)	$R5 \leftarrow R4 \wedge \overline{R5}$	R5 = 0000 0100	(d)	$R5 \leftarrow R0$	R5 = 0000 0000
(b)	$R6 \leftarrow R2 + \overline{R4} + 1$	R6 = 1111 1110	(e)	$R4 \leftarrow sr$Constant	R4 = 0000 0011
(c)	$R5 \leftarrow R0$	R5 = 0000 0000	(f)	$R3 \leftarrow$ Data in	R3 = 0001 1011

9-13.*

a) Opcode = 8 bits b) 18 bits c) 262,144 d) +131,071 and –131,072