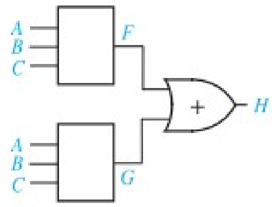
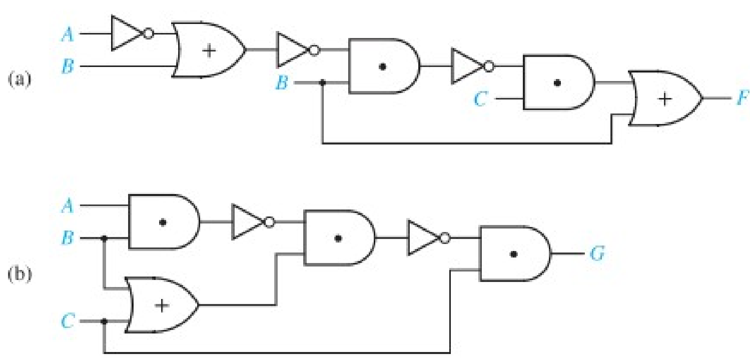
2.21 In the following circuit, $F = (A' + B)C$. Give a truth table for G so that H is as specified in its truth table. If G can be either 0 or 1 for some input combination, leave its value unspecified.

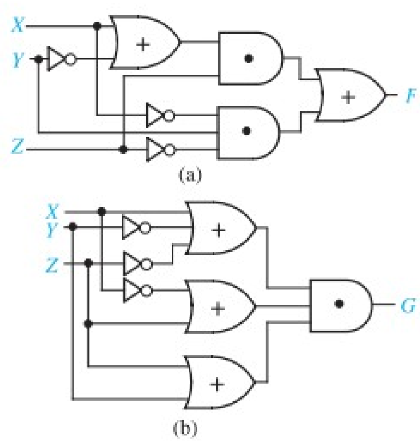


A	B	C	H
0	0	0	0
0	0	1	1
0	1	0	1
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	0
1	1	1	1

2.26 Find F, G, and H, and simplify:

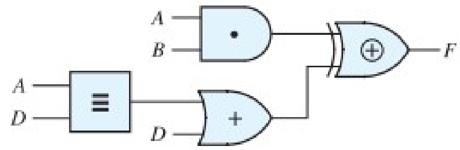


2.30 Show that the following two gate circuits realize the same function.



3.6 In each case, multiply out to obtain a sum of products: (Simplify where possible.)
(a) $(W + X' + Z')(W' + Y')(W' + X + Z')(W + X')(W + Y + Z)$
(b) $(A + B + C + D)(A' + B' + C + D')(A' + C)(A + D)(B + C + D)$

3.8 Write an expression for F and simplify.



3.10 (a) Reduce to a minimum sum of products (three terms):
$(X + W)(Y \oplus Z) + XW'$
(b) Reduce to a minimum sum of products (four terms):
$(A \oplus BC) + BD + ACD$

3.12 Prove algebraically that the following equation is valid:
$A'CD'E + A'B'D' + ABCE + ABD = A'B'D' + ABD + BCD'E$

3.16 Eliminate the exclusive-OR, and then factor to obtain a minimum product of sums:
(a) $(KL \oplus M) + M'N'$
(b) $M'(K \oplus N') + MN + K'N$

3.19 Algebraically prove the following identities:
(a) $x + y = x \oplus y \oplus xy$
(b) $x + y = x \equiv y \equiv xy$

3.20 Algebraically prove or disprove the following distributive identities:
(a) $x(y \oplus z) = xy \oplus xz$
(b) $x + (y \oplus z) = (x + y) \oplus (x + z)$

3.27 Reduce to a minimum sum of products:

$$F = WXY' + (W'Y' \equiv X) + (Y \oplus WZ).$$