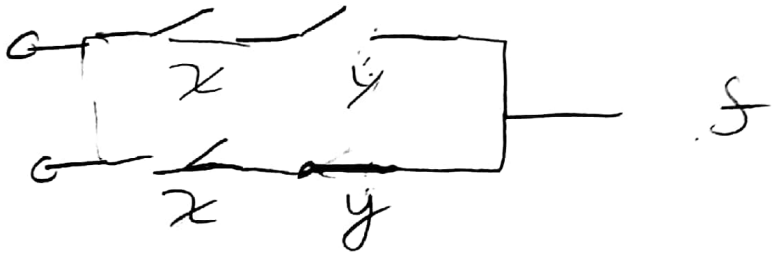
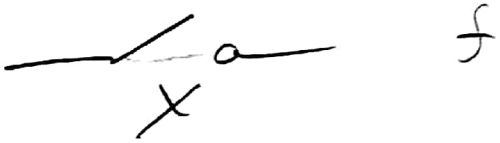
Ch 2.10)

(a) $\underline{x}\,\underline{y} + \underline{x}\,\underline{y}' = x$

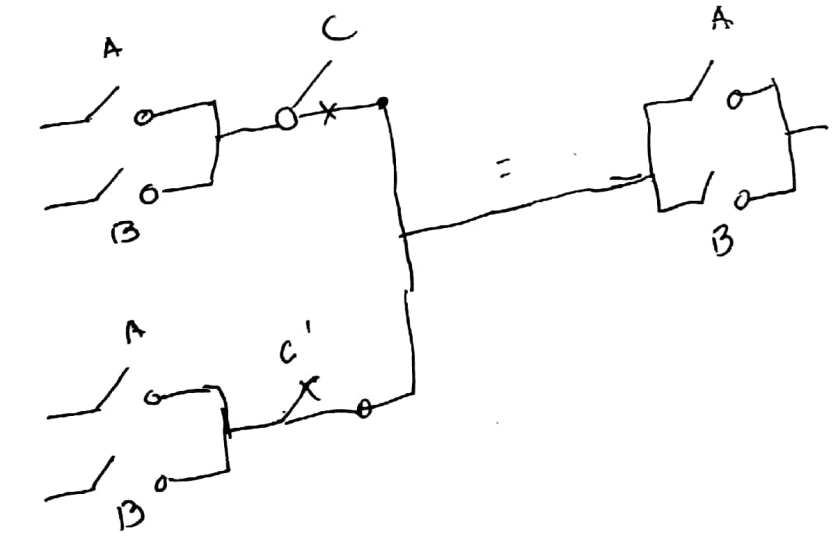




$x(y + y')$

d) $(\underset{\downarrow}{A} + B)C + (A + B)C' = A + B$

D D



1.7

b) (-14) + (-32)

limited to 6 bits

32	16	8	4	2	1
0	0	1	1	1	0

2 comp Step 1)

32: 0 1 1 1 1 1

14: 1 1 0 0 0 1

Step 2)

100000 = -32

110010 = -14

1 100000

+ 110010

1 0 0 0 1 0

16 8 4 2 1

14 -32

Does have overflow

2+16 = 18

2.11

(b) $AB(C'+D) + B(C'+D)$

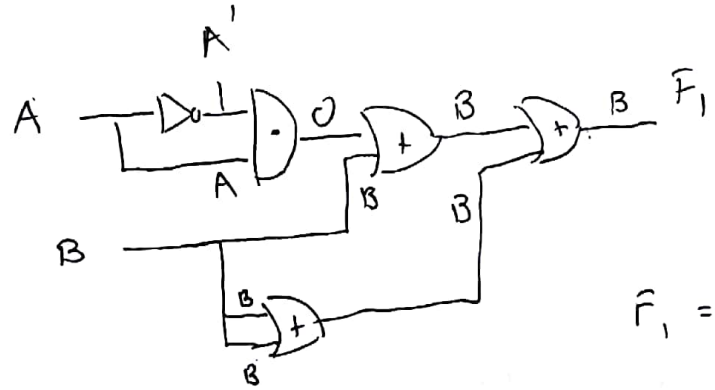
$\Rightarrow B(C'+D) + B(C'+D)A$

$X \qquad X$

$X + XA \qquad Y = A$

$= X$

2.13 a)



$F_1 = f(A, B)$

$F_1 = B$

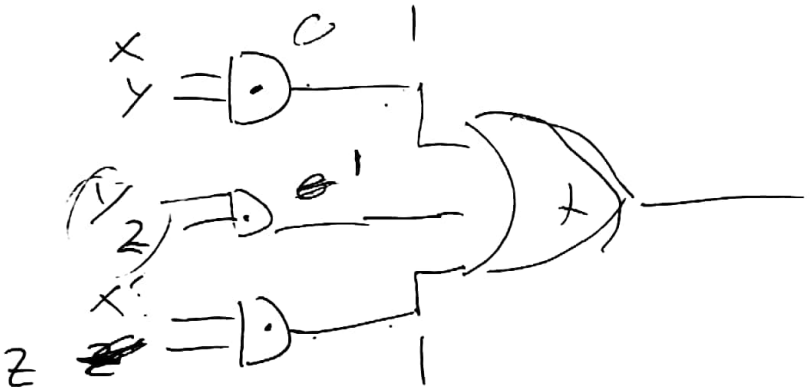
$(A' \cdot A) + B + (B + B) = F_1$

B — F_1

Consensus Theorem

$$xy + yz + x'z = xy + x'z$$

$$(x+z)y + x'z =$$



$$x'z$$

$$xy + yz + x'z = xy + x'z + (x+x')yz$$

$$= xy + x'z + xyz + x'yz$$

$$= (xy + xyz) + (x'z + x'yz)$$

$$xy(1+z) + (1+y)x'z$$

$$xy + x'z$$

P2.26

$G = (A+C')\cdot(A+B')\cdot(B+C')C$

$\Rightarrow (AC + C'C)\cdot(AC+B'C)\cdot(BC+C'C)$ ($C'C = 0$)

$\Rightarrow AC \cdot BC \cdot (AC+B'C)$

$\Rightarrow ABC \cdot AC + ABC\,B'C$ ($BB' = 0$)

$G = ABC$

Binary Division

10001101 ÷ 110

```
         10111
     ---------
110 | 10001101
      110
      ----
      1011
       110
      ----
       1010
        110
       ----
        1001
         110
        ----
          11
```

10111 R 11