8.5

CpE 111- HW01
1.2e; 1.13c; 1.16c; 1.20c; 1.24 ; 2.7, 2.9; 2.11
2.21

Jessy Lai Sec 9/1/99

1.2 c) 256 MB = ? bits

$$256\ MB \cdot \frac{1024\ KB}{1\ MB} \cdot \frac{1024\ B}{1\ KB} \cdot \frac{8\ b}{1\ B} = \boxed{2{,}147{,}483{,}648\ bits}$$

1.13 c) 76 → b_2 → **1001100**

$\frac{76}{2} = 38$ $r_0 = 0$

$\frac{38}{2} = 19$ $r_1 = 0$
$\frac{19}{2} = 9$ $r_2 = 1$
$\frac{9}{2} = 4$ $r_3 = 1$
$\frac{4}{2} = 2$ $r_4 = 0$
$\frac{2}{2} = 1$ $r_5 = 0$
$\frac{1}{2} = 0$ $r_6 = 1$

1.16 c) 0x 70D2 → b_2 ⇒ **0111000011010010**

7 ⇒ 0111
0 ⇒ 0000
D ⇒ 1101
2 ⇒ 0010

0x 70D2 ⇒ b_{10} ⇒ **28882**

$7 \times 16^3 + 13 \times 16^1 + 2 \times 16^0 =$

1.20 c) 0101.1001

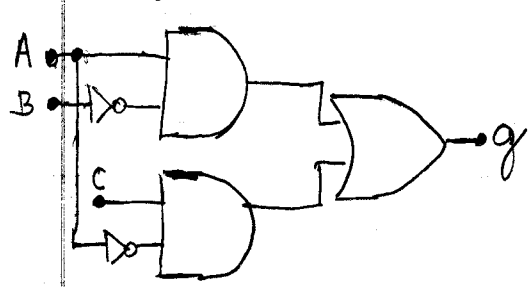
$1 \times 2^2 + 1 \times 2^0 + 1 \times 2^{-1} + 1 \times 2^{-4} =$ **5.5625**

1.24 G: T = 0.3 ns
S: $f = \frac{1}{T} = \frac{1}{0.3 \times 10^{-6}\ s} =$ **3.3×10^6 s** MHz

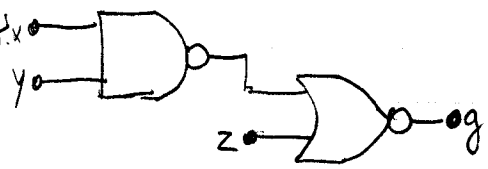
X - 1/2

2.8

2.7 G: $g(A,B,C) = A \cdot \overline{B} + C \cdot \overline{A}$



2.9 G:



F: expression

S:

$$g(x,y,z) = \overline{(\overline{x \cdot y}) + z}$$

2.11

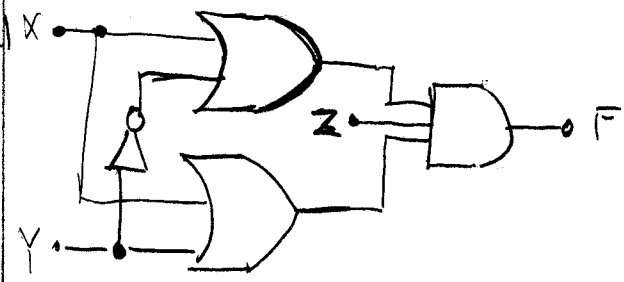
A	B	$\overline{A}$	$\overline{B}$	$\overline{A} \cdot B$	$A \cdot \overline{B}$	$\overline{A} \cdot \overline{B}$	F
0	0	1	1	0	0	1	1
0	1	1	0	1	0	0	1
1	0	0	1	0	0	0	0
1	1	0	0	0	1	0	1

$\overline{A \cdot B}$

yes, able to simplify

$$F = \overline{A} \cdot B + A \cdot \overline{B} + \overline{A} \cdot \overline{B}$$
$$= B \cdot (A + \overline{A}) + \overline{A} \cdot \overline{B}$$
$$= B \cdot 1 + \overline{A} \cdot \overline{B}$$
$$= B + \overline{B} \cdot \overline{A}$$
$$F = \overline{A} + B$$

2.2



$$F(X,Y,Z) = (X + \overline{Y}) \cdot (X + Y) \cdot Z$$

$$(X + (\overline{Y} \cdot Y)) \cdot Z$$

$$(X + 0) \cdot Z$$

$$\boxed{X \cdot Z}$$