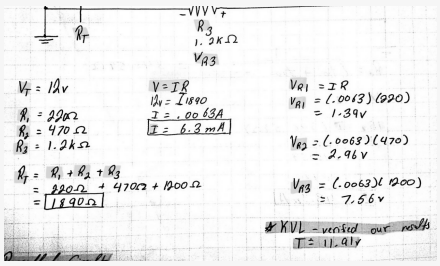
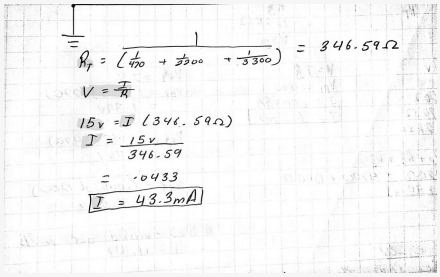
Series Circut



* Current flow is even throughout
* Total resistance (Rt) is equal to the sum of all resistors
* The sum of voltage drops (Vr1+Vr2+Vr3) is equal to the applied voltage (Vt) (Kristoff's Law)

Parrallel Circuit



* Voltage stays the same throughout
* The Rt is equal to teh reciprical of the sum of the reciprical.
* (1/Rt=1/R1+1/R2+1/R) or (Rt= 1/1/R1+1/R2+1/R3)

Binary

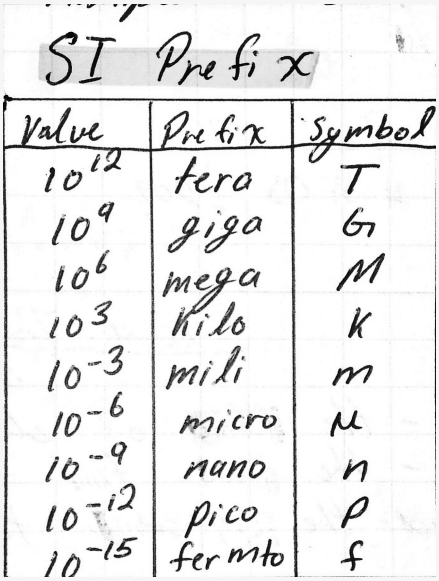
2^8	2^7	2^6	2^5	2^4	2^3	2^2	2^1	2^0
256	128	64	32	16	8	4	2	1

AOI

AND- 74LS08
OR-74LS32
Inverter-74LS04

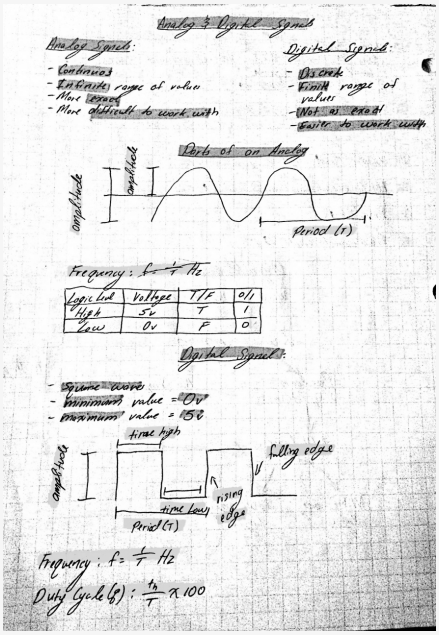
Boolean Agebra

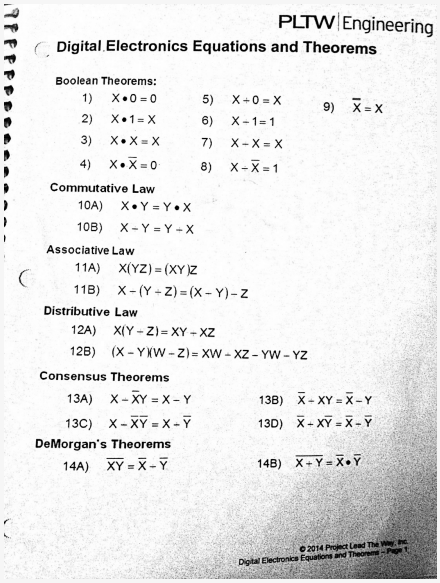
SI Prefix



Value	Prefix	Symbol
10^{12}	tera	T
10^{9}	giga	G
10^{6}	mega	M
10^{3}	kilo	k
10^{-3}	mili	m
10^{-6}	micro	μ
10^{-9}	nano	n
10^{-12}	pico	p
10^{-15}	fermto	f

Waves





PLTW | Engineering

Digital Electronics Equations and Theorems

Boolean Theorems:

1) $X \bullet 0 = 0$
2) $X \bullet 1 = X$
3) $X \bullet X = X$
4) $X \bullet \overline{X} = 0$
5) $X + 0 = X$
6) $X + 1 = 1$
7) $X + X = X$
8) $X + \overline{X} = 1$
9) $\overline{\overline{X}} = X$

Commutative Law

10A) $X \bullet Y = Y \bullet X$
10B) $X + Y = Y + X$

Associative Law

11A) $X(YZ) = (XY)Z$
11B) $X + (Y + Z) = (X + Y) + Z$

Distributive Law

12A) $X(Y + Z) = XY + XZ$
12B) $(X + Y)(W + Z) = XW + XZ + YW + YZ$

Consensus Theorems

13A) $X + \overline{X}Y = X + Y$
13B) $\overline{X} + XY = \overline{X} + Y$
13C) $X + \overline{X}\overline{Y} = X + \overline{Y}$
13D) $\overline{X} + X\overline{Y} = \overline{X} + \overline{Y}$

DeMorgan's Theorems

14A) $\overline{XY} = \overline{X} + \overline{Y}$
14B) $\overline{X + Y} = \overline{X} \bullet \overline{Y}$

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