€ Voltage sources	W
3) Resistors  (a) Kirchoff's Corrent Low (KCL)  (b) Kirchoff's Voltage Low (KVL)  (c) Corrent  - flow of chap across some region  - Positive flow charge flow  A IAB  LEAR B  Case 1: 1-3  IAB > 0; IBA < 0  Case 7: =-3	O current, Voltage
3) Resistors  (a) Kirchoff's Corrent Low (KCL)  (b) Kirchoff's Voltage Low (KVL)  (c) Corrent  - flow of chap across some region  - Positive flow charge flow  A IAB  LEAR B  Case 1: 1-3  IAB > 0; IBA < 0  Case 7: =-3	€ Voltage sources
O (verent  - flow of chap across some region)  - Positive flow charge flow  A TAB  Case 1: +3  IAB > 0; IBA < 0  Case 7: = 3	•
O (verent  - flow of chap across some region)  - Positive flow charge flow  A TAB  Case 1: +3  IAB > 0; IBA < 0  Case 7: = 3	(4) Kirchoff's Corrent Cow (KVL)
O (verent - flow of chap across some region - positive flow charge flow  A TAB  Case 1: +3  IAB > 0; IBA < 0  Case 7: = 3	3) Kirchoffs Voltage
- flow of charge slow  - Positive stow charge slow  A TAB  TAB  TAB  TAB  TAB  TAB  TAB  T	O Company
- Positive Stow charge Slow  A FIBA B  Case 1: +3  IAB > 0; IBA < 0  Case 7: = 3	- flow of cha across some region
Case 1: $\frac{1}{13}$ $IAB > 0$ ; $IBA < 0$ $Case 7: = \frac{3}{2}$	- Positive Stow charge Slow
Case 1: ‡3 IAB70; IBA<0 Case7: =3	A ZIBA
case 7: ===================================	Case 1: + >
Cose 7: == == == == == == == == == == == == ==	IAB70; IBACO
IAB (O', IAB >0	Case 7: ===
	IAB (O', IAB >0
1 Voltage " Pressure " haraes	1 Voltage

To Voltage

- Relative "Force" or "Pressure" charges

moving between 2 points feel

- Voltage is always defined in a relatively

Ovoltage somes



$$V_{A} = -1 U$$

$$V_{B} = 0$$

$$V_{C} = 2 U$$

$$V_{AB} = V_{A} - V_{B} = -1 V$$

$$V_{BA} = V_{B} - V_{A} = 1 V$$

$$V_{CB} = V_{C} - V_{B} = 2 V$$

$$V_{BC} = -V_{CB} = -2 U$$

$$V_{CA} = V_{C} - V_{A} = 3 U$$

$$2 U - (-1 U) = 3 V$$

V=IR omo

Series Rc

A MOMO => A C

IN 22 => 322

 $Reg = \sum_{i=1}^{N} R_i$ 

3 Resistors Porallel Rs 12-P( \$ REQ =  $\left(\frac{1}{R_{1}} + \frac{1}{R_{2}}\right) = \frac{1}{REQ} = \left(\frac{1}{1} + \frac{1}{1}\right) = 2$  $REQ = \frac{1}{2} 52$   $REQ = \frac{1}{2} 52$   $RR = \frac{1}{2} RR =$ 

 $\sum_{i=1}^{N} \frac{1}{P_i} = \frac{1}{P_{Eq}}; \quad REq = \left(\sum_{i=1}^{N} \left(\frac{1}{P_i}\right)\right)^{-1}$ 

Corrent Can (4) Kirchoff's Currents (urrents Current  $I_1 + I_2 = I_3 + I_4$ currents currents I,+In+I3+I4= 0 ) Krchoff's Voltage Lou?  $-ZV+V_{R_1}=0$ VR1 = 20 Loop 1: -V1 + VR1 + VR2 = 0 Loop3: -V, + VR, + RVR3=0 LOOP 7: -VRZ + VR3 = 0

$$V_{R_1} + V_{R_2} = V_1$$
  
 $V_{P_1} + V_{P_3} = V_1$ 

$$V_1 - V_{R1} = V_{RZ}$$
  
 $V_1 - V_{R1} = V_{RZ}$ 

## Kirchoff's Corrent Low

$$-I_1 - I_2 - I_3 = 0$$

$$-1(I_1+I_2+J_3)=0$$

$$\dot{T}_{l} = \frac{V_{Rl}}{R_{l}} = \frac{V_{l} - V_{B}}{R_{l}}$$

$$J_3 = \frac{V_A - V_B}{R_3}$$



Inductor Leece Resistare Jamo # V=Ldi VR= IRR

Capacito

I=Cdv