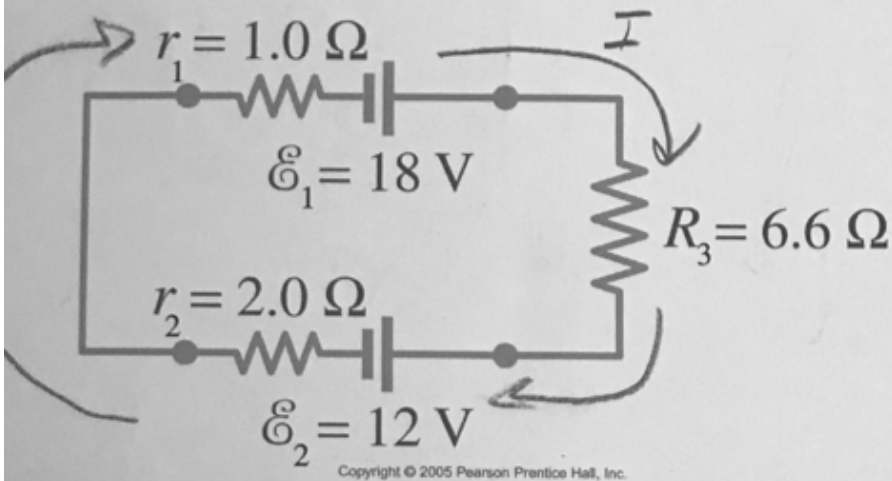


Kirchoff's Laws #2



Loop Rule

$$18V - 6.6I - 12V - 2I - 1I = 0$$

$$6V = 9.6I$$

$$I = 0.625A$$

? meaningless?

	ΔV V (Volts)	I (A)	R (Ω)	P (W)
\mathcal{E}_1	18	0.625	28.8	11.25
\mathcal{E}_1	-12	0.625	-19.2	-7.5
R_1	-0.625	0.625	1	-0.391
R_2	-1.25	0.625	2	-0.781
R_3	-4.125	0.625	6.6	-2.58

Total = 0V
(because it's one loop)

Total = 0W
Energy is conserved
input
output

Junction Rule:

$$I_1 + I_3 = I_2$$

Loop A (CW)

$$9V - 18I_2 = 0$$

$$9V = 18I_2$$

$$I_2 = 0.5A$$

Loop B (CCW)

$$6V - 18I_2 - 12I_3 = 0$$

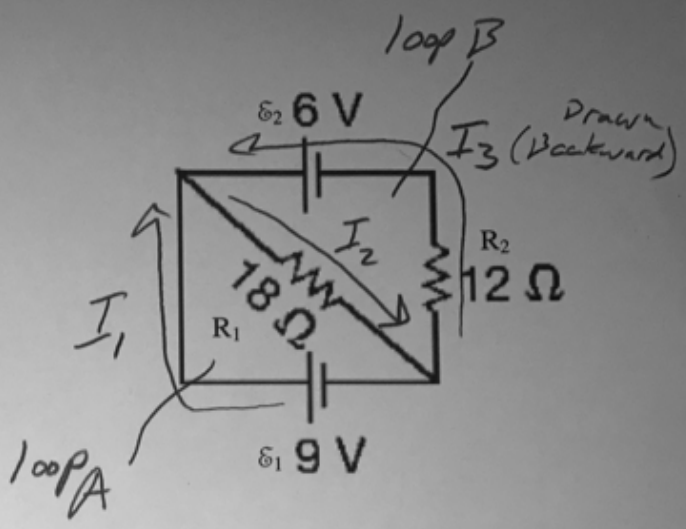
$$6V - 9V = 12I_3$$

$$I_3 = -\frac{3}{12}A$$

$$I_3 = -0.25A$$

$$I_1 = 0.5 + (-0.25)$$

$$I_1 = 0.75A$$



? Meaningless?

	V (Volts)	I (A)	R (Ω)	P (W)
ε ₁	9V	0.75	12	6.75
ε ₁	-6V	0.25	24	-11.5
R ₁	-9V	0.5	18	-4.5
R ₂	-3V	0.25	12	-0.75

Total ≠ 0, because it's not one loop

Total = 0W

Energy is Conserved