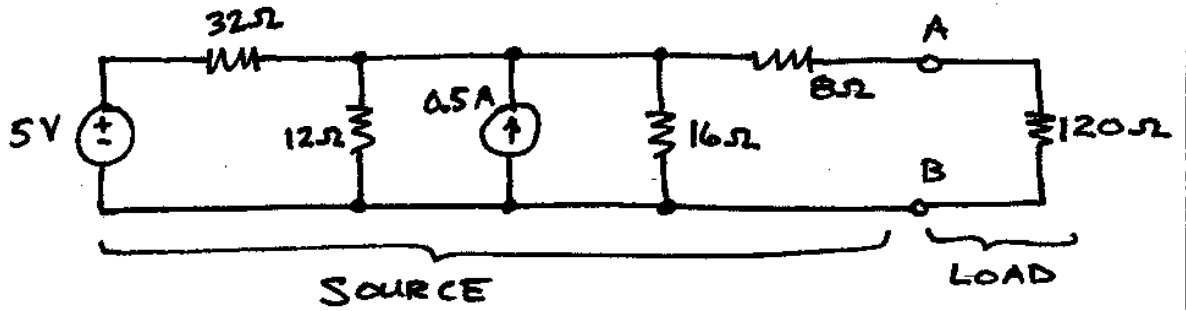
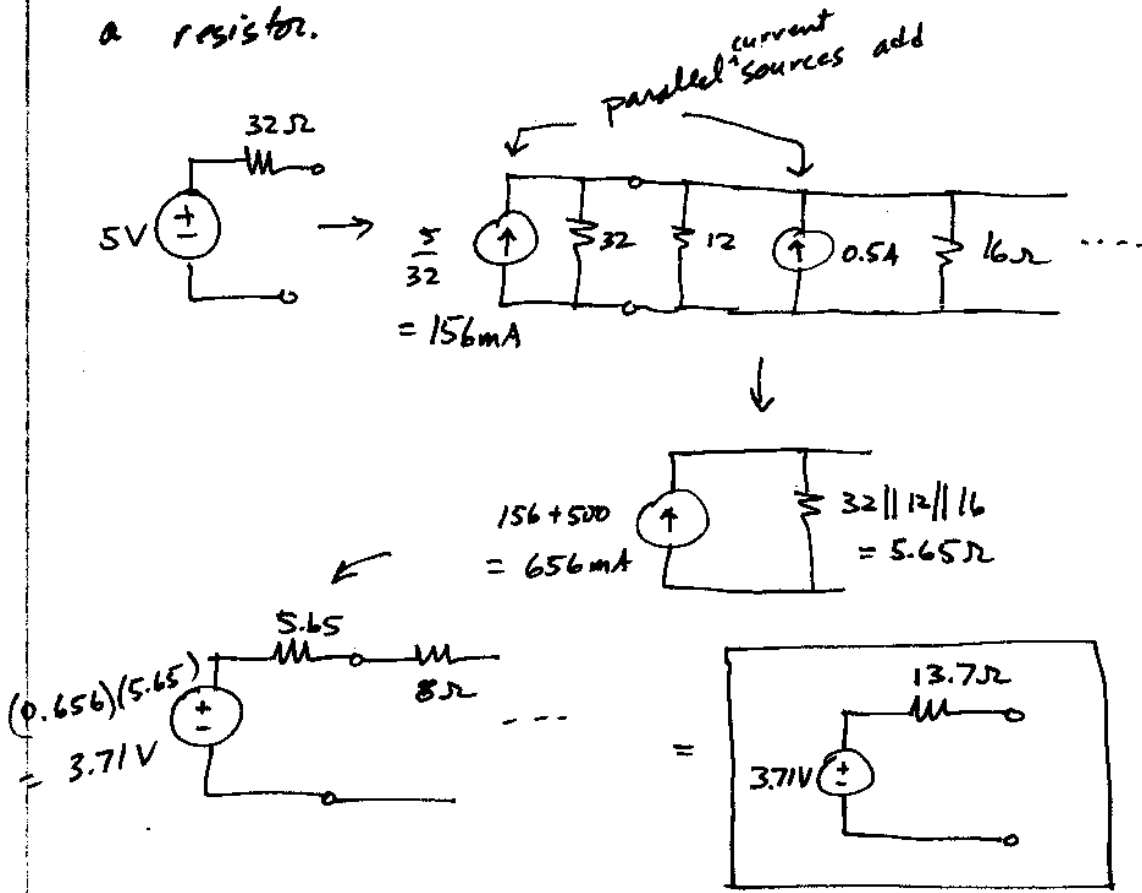


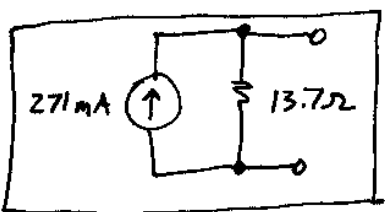
①



Use repeated source transformations and resistor combinations to reduce the "SOURCE" circuit to an equivalent circuit at the terminals A-B that contains only a source and a resistor.



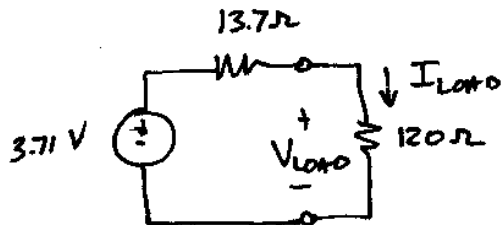
- OR -



24-01 50 SHEETS
25-01 100 SHEETS
26-01 200 SHEETS
27-01 300 SHEETS
28-01 400 SHEETS
29-01 500 SHEETS
30-01 600 SHEETS
31-01 700 SHEETS
32-01 800 SHEETS
33-01 900 SHEETS
34-01 1000 SHEETS

(Refer to the circuit on opposite page...)

- ② Express the power absorbed by the 120Ω resistor ("LOAD") as a percentage of the maximum available power from the "SOURCE" circuit.



$$P_{\max} = \frac{V_T^2}{4R_T} = \frac{(3.71)^2}{4(13.7)} = 252 \text{ mW}$$

$$P_{\text{LOAD}} = (V_{\text{LOAD}})(I_{\text{LOAD}}) = \underbrace{\left(\frac{120}{120 + 13.7} 3.71\right)}_{\text{voltage divider}} \underbrace{\left(\frac{3.71}{13.7 + 120}\right)}_{\text{source voltage divided by total series resistance}}$$

$$= (3.33)(27.7E-3)$$

$$= 92.4 \text{ mW}$$

$$\%_{\max} = \frac{P_{\text{LOAD}}}{P_{\max}} \times 100\% = \frac{92.4}{255.252} = \boxed{37\%}$$