Sol E. Final C' Atp.

4) a) A (2, 0, 3) B (4, 2, 0) C (0, 2, 0) D (2, 4, 0)

b) $\hat{\mu}_{AB} = \frac{2\hat{i} + 2\hat{j} - 3\hat{k}}{\sqrt{4+4+9}} = \left(\frac{2\hat{i}}{\sqrt{17}} + \frac{2\hat{j}}{\sqrt{17}} - \frac{3\hat{k}}{\sqrt{17}}\right)$

$\hat{\mu}_{AC} = \frac{-2\hat{i} + 2\hat{j} - 3\hat{k}}{\sqrt{4+4+9}} = \left(\frac{-2\hat{i}}{\sqrt{17}} + \frac{2\hat{j}}{\sqrt{17}} - \frac{3\hat{k}}{\sqrt{17}}\right)$

$\hat{\mu}_{AD} = \frac{0\hat{i} + 4\hat{j} - 3\hat{k}}{\sqrt{16+9}} = \left(\frac{4\hat{j}}{5} - \frac{3\hat{k}}{5}\right)$

$\vec{F}_{AB} = 200\sqrt{17}\left(\frac{2\hat{i}}{\sqrt{17}} + \frac{2\hat{j}}{\sqrt{17}} - \frac{3\hat{k}}{\sqrt{17}}\right)$

$\vec{F}_{AB} = 400\hat{i} + 400\hat{j} - 600\hat{k}$

$\vec{F}_{AC} = 200\sqrt{17}\left(\frac{-2\hat{i}}{\sqrt{17}} + \frac{2\hat{j}}{\sqrt{17}} - \frac{3\hat{k}}{\sqrt{17}}\right)$

$\vec{F}_{AC} = -400\hat{i} + 400\hat{j} - 600\hat{k}$

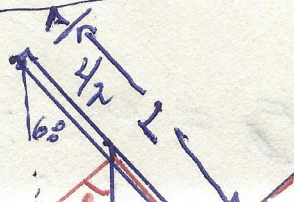
$\vec{F}_{AD} = 200\sqrt{29}\left(\frac{4}{5}\hat{j} - \frac{3\hat{k}}{5}\right)$

$\vec{F}_{AD} = 861.6\hat{j} - 646.2\hat{k}$

$\vec{F}_R = 0\hat{i} + 1661.6\hat{j} - 1846.2\hat{k}$

$|\vec{F}_R| = \sqrt{(1661.6)^2 + (1846.2)^2} = 1782.81$

02)



$T\sin 30° = 1000\cos 30°$

$T\left(\frac{1}{2}\right) = 1000\left(\frac{\sqrt{3}}{2}\right)$

$T = 866.N$

$Q_2 = 600(\ldots)$

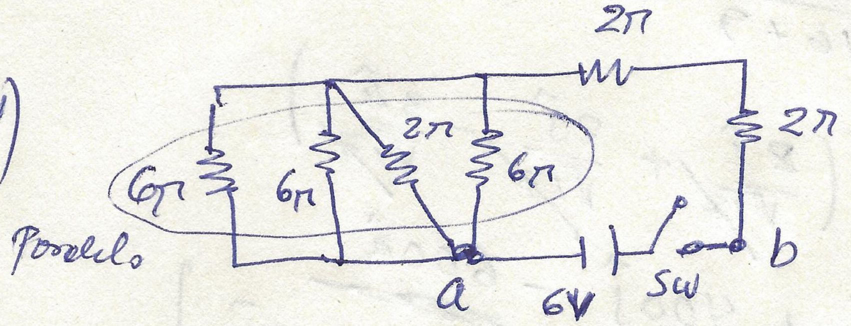
$Q_3 = 900(90) = 81{,}000 \text{ cal}$

$5400 + 600(T_e - 0) = -900(1)(T_e - 90°)$

$600 T_e = -900 T_e + 81000 - 54000$

$T_e = 18 °C$

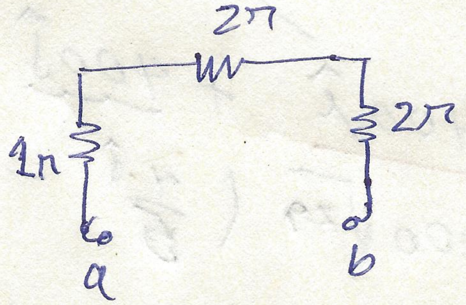
04)



a)

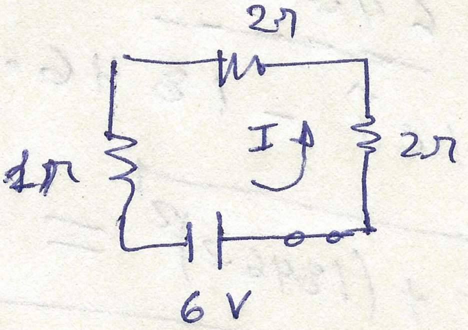
$\frac{1}{R_{eq}} = \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{2} = \frac{1+1+1+3}{6} = \frac{6}{6} =$

$R_{eq} = 1\,\Omega.$



$R_{eq\,ab} = 5\,\Omega.$

b)



$I = \frac{V}{R} = \frac{6 \text{ Voltios}}{5\,\Omega} = 1.2 \text{ A.}$

05)
a) en tracción
b) por su forma geométrica.
c) Distorsión.
d) $\Sigma M_0 = 0 \wedge \Sigma F = 0.$

Sumatoria de momentos en el pto 'o'   Sumatoria de fuerzas igual a cero.

03)

$Q_1 = 600(0.5)(20) = 6000\ cal$

$Q_2 = 600(80) = 48000\ cal.$

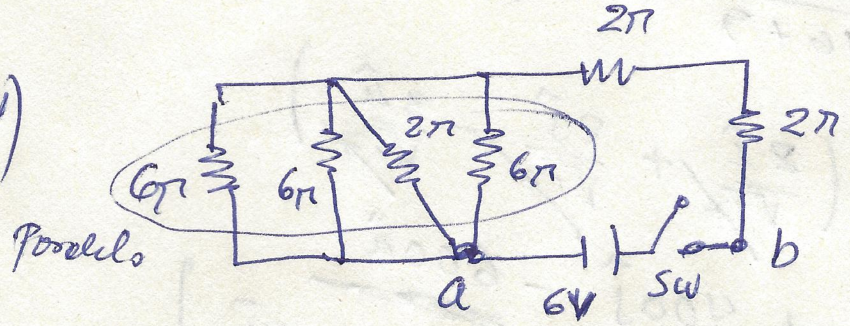
$Q_3 = 900(90) = 81,000\ cal$

$5400 + 600(T_o - 0) = -900(1)(T_e - 90^\circ)$

$600T_e = -900T_e + 81000 - 54000$

$T_e = 18^\circ C$

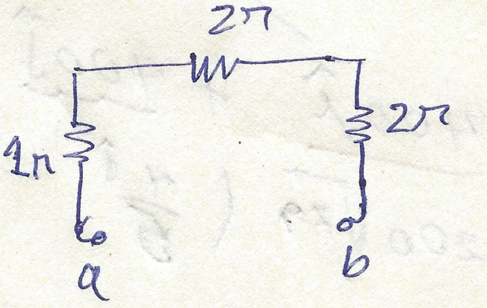
04)



a)

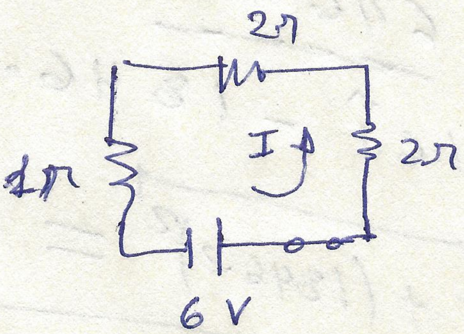
$\frac{1}{R_{eq}} = \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{2} = \frac{1+1+1+3}{6} = \frac{6}{6} =$

$R_{eq} = 1\Omega.$



$R_{eq\,ab} = 5\Omega.$

b)



$I = \frac{V}{R} = \frac{6\ Voltios}{5\Omega} = 1.2\ A$

05) a) entrantes

b) polo norte geográfico.

c) Dieléctricos.

d) $\Sigma M_o = 0 \wedge \Sigma F = 0.$

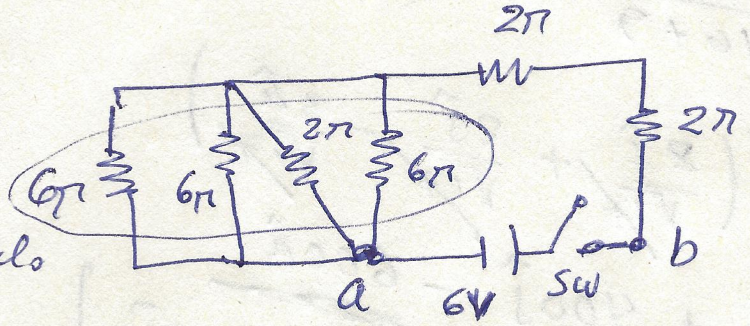
$Q_3 = 900(90) = 81{,}000$ cal

$5400 + 600(T_0 - 0) = -900(1)(T_e - 90^0)$

$600T_e = -900T_e + 81000 - 54000$

$T_e = 18^0C$

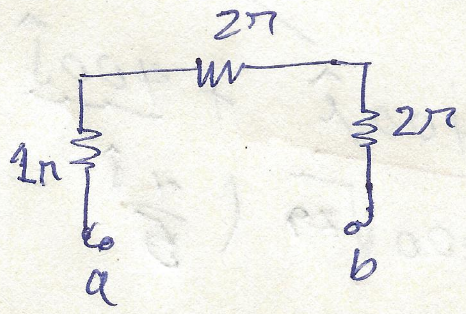
04)



a)

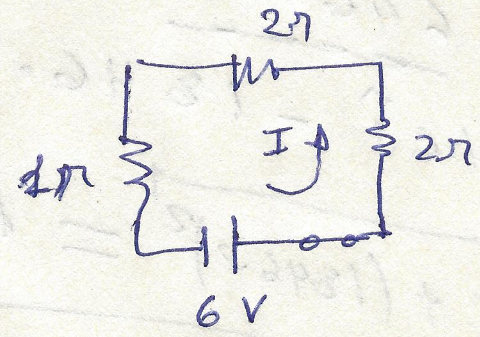
$\frac{1}{R_{eq}} = \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{2} = \frac{1+1+1+3}{6} = \frac{6}{6} =$

$R_{eq} = 1\Omega.$



$R_{eq\,ab} = 5\Omega.$

b)



$I = \frac{V}{R} = \frac{6\ \text{Voltios}}{5\Omega} = 1.2\ A$

05) a) en trautes

b) polo norte geográfico.

c) Dieléctricos.

d) $\Sigma M_0 = 0 \wedge \Sigma F = 0.$

Sumatoria de momentos en el pto 'O'

Sumatoria de fuerzas igual a cero.