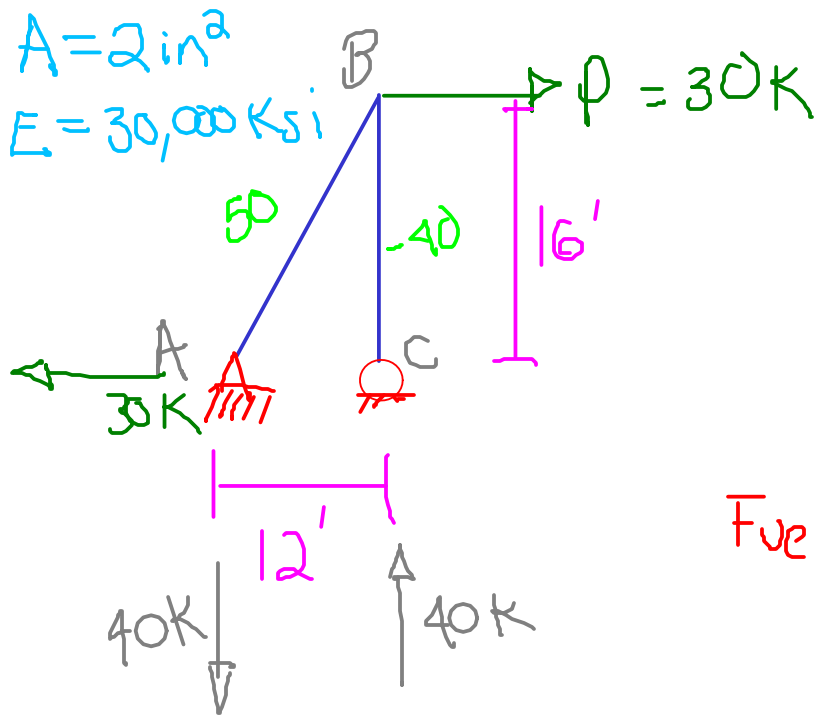


$A = 2 \text{ in}^2$
 $E = 30,000 \text{ Ksi}$



δx_B & δy_B ?

$$\sum M_C = (30)(16) - R_A(12) = 0$$

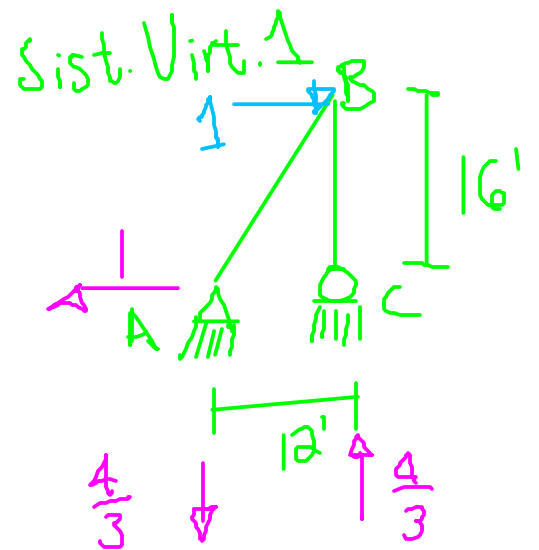
$$\rightarrow R_A = 40 \text{ k} \downarrow$$

Fuerzas en las barras

$$F_{BC} = -40 \text{ K}$$

$$F_{AB} = \sqrt{40^2 + 30^2} = 50 \text{ K}$$

$$\sum Q \delta p = \sum F_a \frac{F_p L}{AE}$$



$$(1)(16) = R(12)$$

$$R = 4/3$$

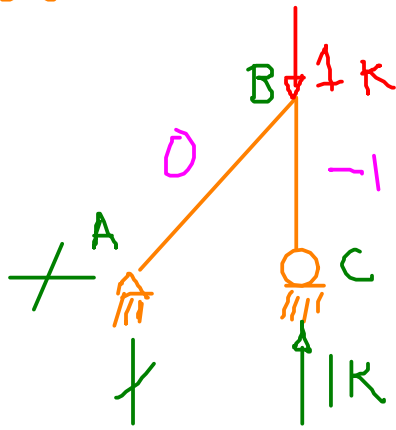
$$F_{BC} = -4/3 \text{ K}$$

$$F_{AB} = \sqrt{1^2 + (4/3)^2} = 5/3 \text{ K}$$

$$(1) \delta_{px} = \frac{(-40)(-4/3)(16 \times 12)}{2(30,000)} + \frac{(50)(5/3)(20 \times 12)}{2(30,000)}$$

$$\delta_{px} = 0.5 \text{ in} \rightarrow$$

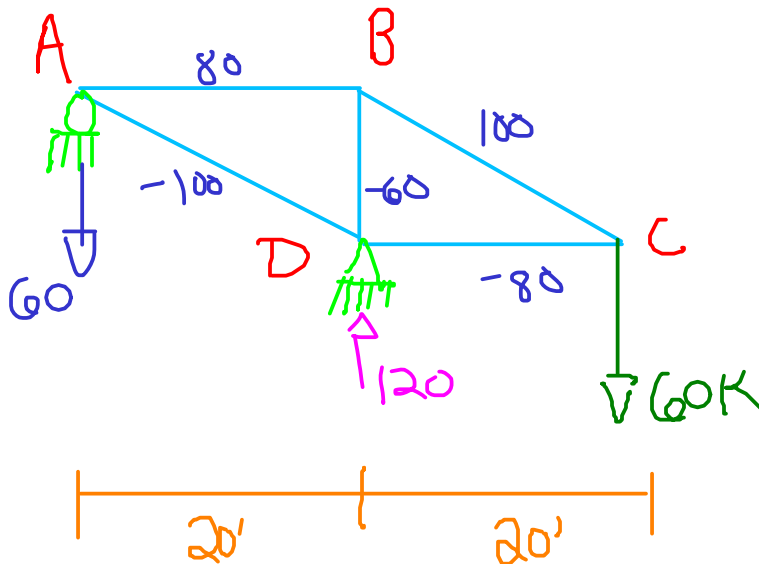
Sistema Virtual 2



$$\sum Q \delta_p = \sum F_a \frac{F_p L}{AE}$$

$$1 \delta_{p y_B} = \frac{-1 (-40)(16 \times 12)}{2(30,000)}$$

$$\delta_{p y_B} = 0.128 \text{ in } \downarrow$$



$\delta_{x_B}?$

$$E = 30,000 \text{ Ksi}$$

$$A_{AB} = 5 \text{ in}^2$$

$$A_{BC} = 5 \text{ in}^2$$

$$A_{\text{resto}} = 4 \text{ in}^2$$

$$\sum M_D = 0 = 60(20) - R_A(20) \Rightarrow R_A = 60$$

$$\sum F_x = 0 \Rightarrow R_{Dx} = 0$$

$$\sum F_y = 0 = -60 - 60 + R_{Dy} \Rightarrow R_{Dy} = 120$$

Node C



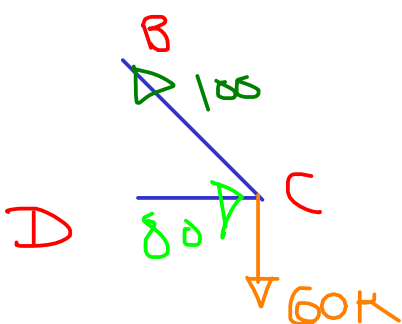
$$3 \times 5 = 15$$

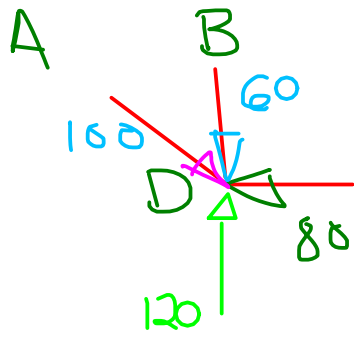
$$5 \times 5 = 25$$

$$4 \times 5 = 20$$

$$\sum F_y = 0 = -60 + F_{BC} \left(\frac{15}{25} \right) \Rightarrow F_{BC} = 100 \text{ T}$$

$$\sum F_x = 0 = F_{DC} - 100 \left(\frac{20}{25} \right) \Rightarrow F_{DC} = 80 \text{ C}$$

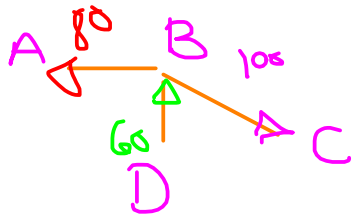




$$\sum F_x = 0 = -80 + F_{AD} \left(\frac{20}{25} \right) \rightarrow F_{AD} = 100 \text{ C}$$

$$\sum F_y = 0 = 120 - F_{BD} - 160 \left(\frac{15}{25} \right)$$

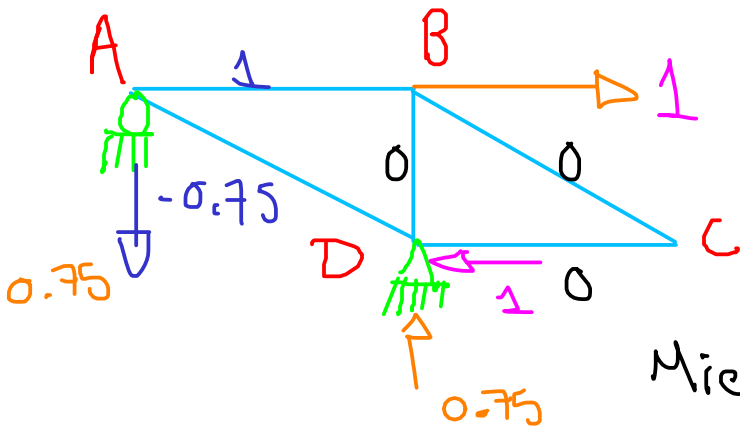
$$F_{BD} = 60 \text{ C}$$



$$\sum F_x = 100 \left(\frac{20}{25} \right) - F_{AB} = 0$$

$$F_{AB} = 80 \text{ T}$$

$$\sum F_y = 60 - 100 \left(\frac{15}{25} \right) = 0 \text{ (Verif.)}$$



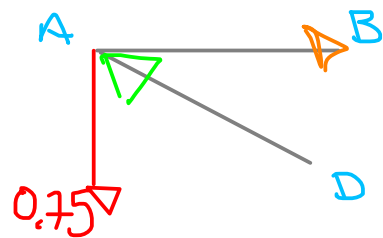
$$(1)(15) = (\lambda)(20)$$

$$\lambda = 0.75$$

Miembros de fuerza cero.



Nodo A



$$\sum F_y = 0 = -0.75 + F_{AD} \left(\frac{15}{25} \right)$$

$$F_{AD} = 1.25 \text{ C}$$

$$\sum F_x = -1.25 \left(\frac{20}{25} \right) + F_{AB} = 0 \rightarrow F_{AB} = 1 \text{ (T)}$$

Miembro	F_Q ^{Kip}	F_P ^{Kip}	L ^{ft}	A ^{in²}	$\frac{F_Q F_P L}{A}$ ^{$\frac{\text{Kip}^2 \text{ft}}{\text{in}^2}$}
AB	1	80	20	4	400
BC	0	100	25	5	0
CD	0	-80	20	4	0
AD	-1.25	-100	25	5	625
BD	0	-60	15	4	0
					<hr/> 1025

$$\sum Q \delta_p = \sum \frac{F_Q F_P L}{AE}$$

$$1 \delta_{hB} = \frac{1025 \frac{\text{Kip}^2 \text{ft}}{\text{in}^2}}{30,000 \frac{\text{Kip}}{\text{in}^2}} (12) \xrightarrow{\text{ft} \rightarrow \text{in}} = \underline{\underline{0.41 \text{ in} \rightarrow}}$$