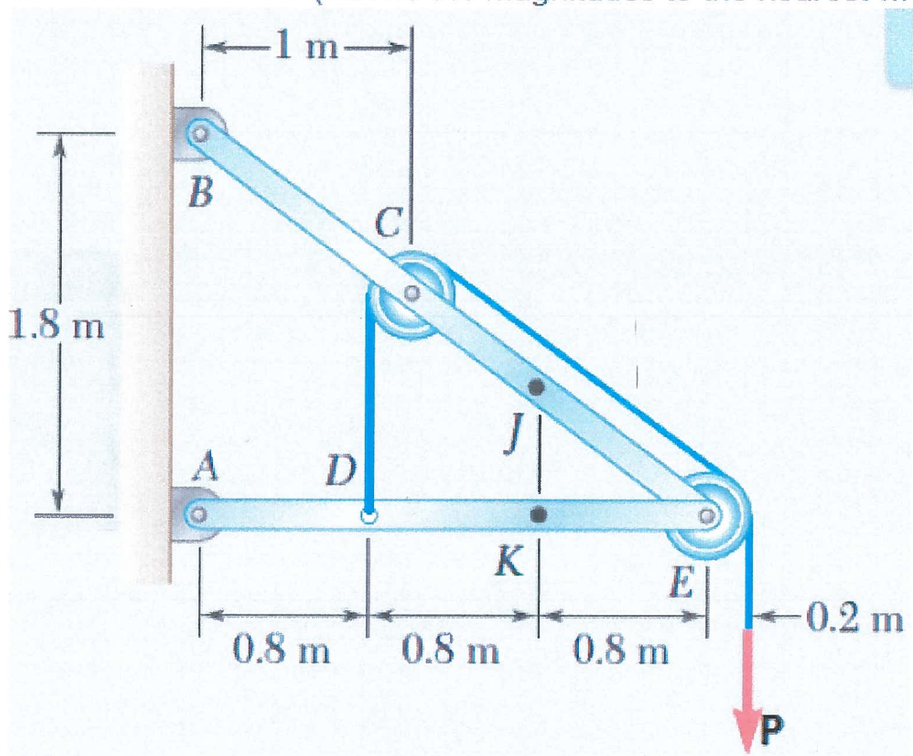
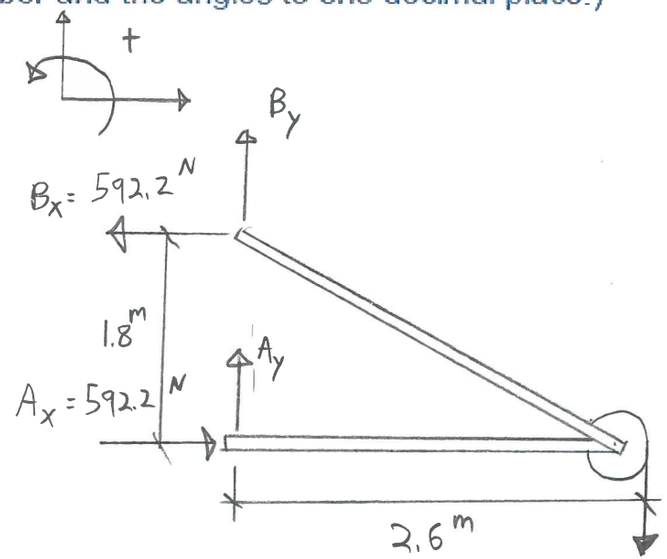
Knowing that the radius of each pulley is 200 mm, $P = 410$ N, and neglecting friction, determine the internal forces at point J of the frame shown. (Round the magnitudes to the nearest whole number and the angles to one decimal place.)



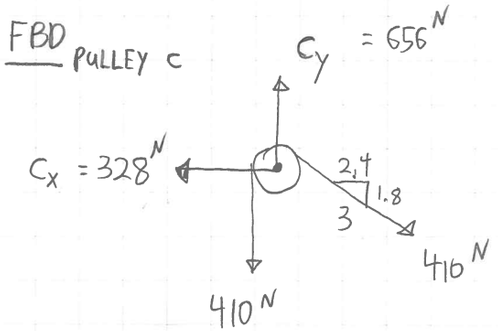
FBD



$\curvearrowleft + \sum M_A = B_x(1.6^m) - 410^N(2.6^m) = 0 \Rightarrow \underline{\underline{B_x = 592.2^N}}$

$\overset{+}{\rightarrow} \sum F_x = -592.2^N + A_x = 0 \Rightarrow \underline{\underline{A_x = 592.2^N}}$

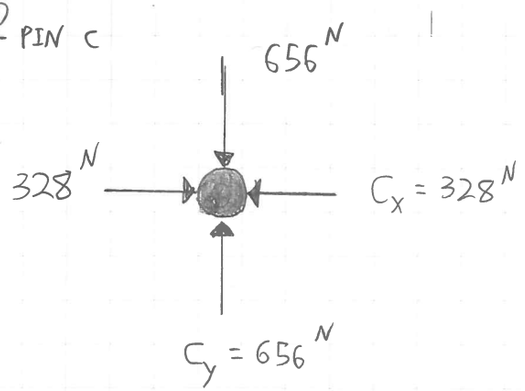
FBD PULLEY C



$+\uparrow \sum F_y = C_y - 410^N - 410^N\left(\frac{1.8}{3}\right) = 0 \Rightarrow \underline{C_y = 656^N}$

$+\rightarrow \sum F_x = -C_x + 410^N\left(\frac{2.4}{3}\right) = 0 \Rightarrow \underline{C_x = 328^N}$

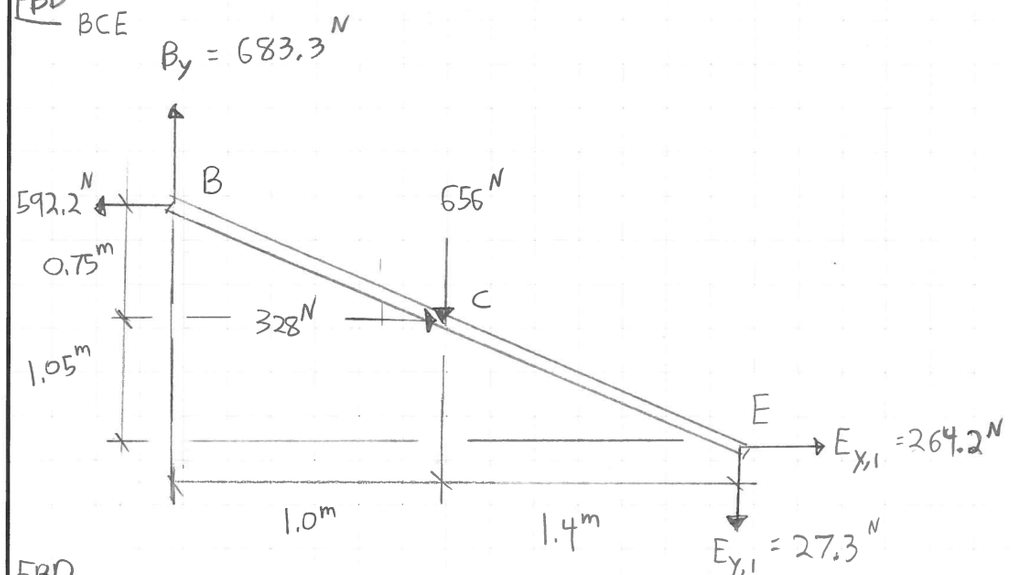
FBD PIN C



$+\uparrow \sum F_y = -656^N + C_y = 0 \Rightarrow \underline{C_y = 656^N}$

$+\rightarrow \sum F_x = 328^N - C_x = 0 \Rightarrow \underline{C_x = 328^N}$

FBD BCE



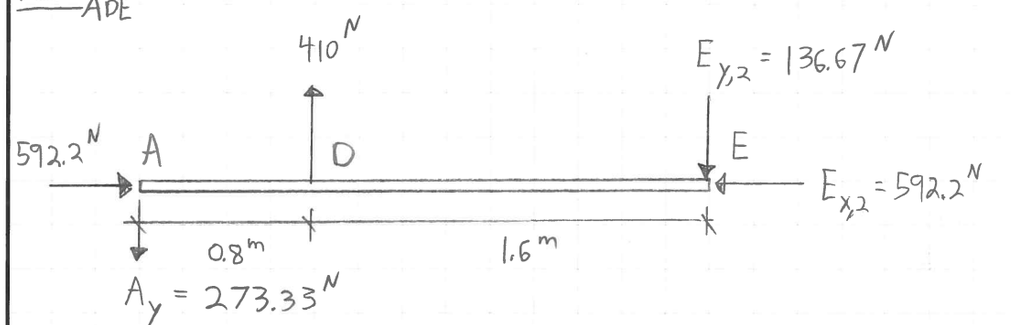
$\overset{+}{\circlearrowleft}\Sigma M_E = 656^N(1.4^m) - 328^N(1.05^m) + 592.2^N(1.8^m) - B_y(2.4^m) = 0$

$\Rightarrow \underline{B_y = 683.3^N}$

$+\uparrow \Sigma F_y = 683.3^N - 656^N - E_{y,1} = 0 \Rightarrow \underline{E_{y,1} = 27.3^N}$

$\overset{+}{\rightarrow} \Sigma F_x = -592.2^N + 328^N + E_{x,1} = 0 \Rightarrow \underline{E_{x,1} = 264.2^N}$

FBD ADE

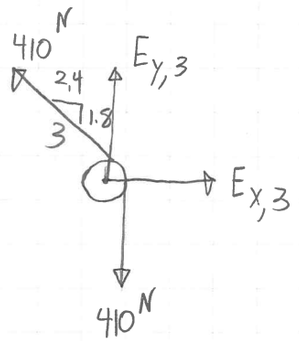


$\overset{+}{\circlearrowleft}\Sigma M_A = 410^N(0.8^m) - E_{y,1}(2.4^m) = 0 \Rightarrow \underline{E_{y,2} = 136.67^N}$

$+\uparrow \Sigma F_y = -136.67^N + 410^N - A_y = 0 \Rightarrow \underline{A_y = 273.33^N}$

$\overset{+}{\rightarrow} \Sigma F_x = 592.22^N - E_x = 0 \Rightarrow \underline{E_{x,2} = 592.2^N}$

FBD PULLEY E



$+\uparrow \sum F_y = E_{y,3} - 410^N + 410^N\left(\frac{1.8}{3}\right) = 0 \Rightarrow E_{y,3} = 164^N$

$+\rightarrow \sum F_x = E_{x,3} - 410^N\left(\frac{2.4}{3}\right) = 0 \Rightarrow E_{x,1} = 328^N$

FBD PIN E