Disponible a un clic de distancia y sin publicidad



Suscríbete

Sí este material te es útil,
ayúdanos a mantenerlo online

Comparte

Comenta

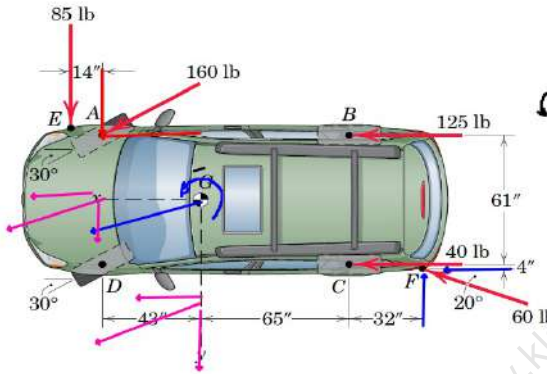
Que no se apague

Este material está en línea porque creo que a alguien le puede ayudar.
Lo desarrollo y sostengo con recursos propios.
Ayúdame a continuar en mi locura de compartir el conocimiento.

Engineering Mechanics. Statics. Meriam - Kraige - Bolton. 9 Ed.

Resultante de un sistema de fuerzas. Aplicación vehículo 4x4

2/81 Uneven terrain conditions cause the left front wheel of the all-wheel-drive vehicle to lose traction with the ground. If the driver causes the traction forces shown to be generated by the other three wheels while his two friends exert the indicated forces on the vehicle periphery at points E and F, determine the resultant of this system and the x- and y-intercepts of its line of action. Note that the front and rear tracks of the vehicle are equivalent; that is, AD = BC. Treat this as a two-dimensional problem and realize that G lies on the car centerline.



$\vec{R} = R_x\hat{i} + R_y\hat{j}$

$R_x = 160\cos 30 + 125 + 40 + 60\cos 20 = 360$ lb

$R_y = 85 + 160\operatorname{sen} 30 - 60\operatorname{sen} 20 = 144{,}5$ lb

$\circlearrowleft M_G = 85\times(93+14) + 160\operatorname{sen}30\times 43 + 160\cos 30\times\frac{61}{2} + 125\times\frac{61}{2} - 40\times\frac{61}{2} + 60\operatorname{sen}20\times(65+32) - 60\cos 20\times\left(\frac{61}{2}+4\right)$

$= 15149{,}09$ lb. in

$M = F\cdot d \qquad \frac{15149{,}09}{144{,}5} = d = 104{,}8$ in

$(104.8, 0)$ in

$y = mx + b \qquad m = \frac{144{,}5}{360}$

$0 = \frac{144{,}5}{360}\cdot 104{,}8 + b \qquad b = -42{,}1$ in $\qquad (0, -42.1)$ in

http://www.klasesdematematicasymas.com/