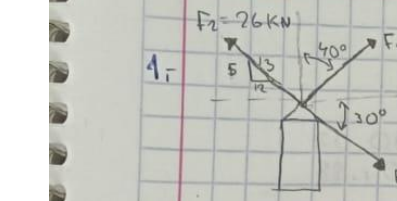
Edgar Cortés Reséndiz 4°A Ing. Sistemas

Actividad 1

1.



$\theta_1 = 90 - 40 = 50°$

$F_{x1} = 15 \cos(50) = 9.64$
$F_{y1} = 15 \operatorname{sen}(50) = 11.44$

$\theta_2 = \cos^{-1}\left(\frac{12}{13}\right) = 22.61°$

$F_{x2} = -26 \cos(22.61) = -24.001$
$F_{y2} = 26 \operatorname{sen}(22.61) = 9.99$

$F_{x3} = 36 \cos(30) = 31.17$
$F_{y3} = -36 \operatorname{sen}(30) = -18$

F_x
$9.64 + 24.001 + 31.17$

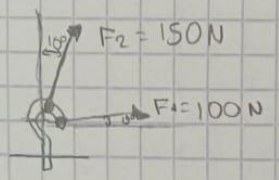
$F_x = 16.809$

F_y
$11.49 + 9.99 - 18$

$F_y = 3.48$

$$|\vec{F}| = \sqrt{(16.809)^2 + (3.48)^2}$$
$$= \sqrt{282.54 + 12.11}$$
$$= 17.16 \text{ KN}$$

2.



$F_{x1} = 100 \cos(15) = 96.59$
$F_{y1} = 100 \operatorname{sen}(15) = 25.88$

$\theta_2 = 90° - 10° = 80°$

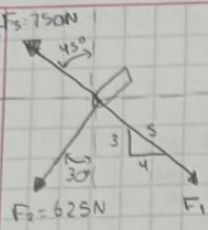
$F_{x2} = 150 \cos(80) = 26.04$
$F_{y2} = 150 \operatorname{sen}(80) = 147.72$

F_x
$96.59 + 26.04$
$F_x = 122.63$

F_y
$25.88 + 147.72$
$F_y = 173.6$

$$|\vec{F}| = \sqrt{(122.63)^2 + (173.61)^2}$$
$$= \sqrt{15,038.11 + 30,136.96}$$
$$= 212.54 \text{ N}$$

3.



$\theta_1 = \cos^{-1}\left(\frac{4}{5}\right) = 36.86°$

$F_{x1} = 850\cos(36.86) = 680.08$
$F_{y1} = -850\,\text{sen}(36.86) = -509.88$

$\theta_2 = 90° - 30° = 60°$
$F_{x2} = -625\cos(60) = -312.5$
$F_{y2} = -625\,\text{sen}(60) = -541.26$

$\theta_3 = 90° - 45° = 45°$
$F_{x3} = -750\cos(45) = -530.33$
$F_{y3} = 750\,\text{sen}(45) = 530.33$

F_x
$680.08 - 312.5 - 530.33$

$F_x = -162.75$

F_y
$-509.88 - 541.26 + 530.33$

$F_y = -520.81$

$|\vec{F}| = \sqrt{(-162.75)^2 + (-520.81)^2}$
$= 545.64\,N$