Analytical Solution

$R_x = A_x + B_x = A\cos\theta_1 + B\cos\theta_2$

$R_y = A_y + B_y = A\sin\theta_1 + B\sin\theta_2$

$R = \sqrt{R_x^2 + R_y^2}$

$\theta = \tan^{-1}\frac{R_y}{R_x}$

$A = 3.413\ N \qquad \theta_1 = 30°$

$B = 2.45\ N \qquad \theta_2 = 130°$

$R_x = 3.413\ N \cos(30°) + 2.45\ N \cos(130°)$

$= 1.396\ N$

$R_y = 3.413\ N \sin(30°) + 2.45 \sin(130°)$

$= 3.592\ N$

$R = \sqrt{(1.396\ N)^2 + (3.592\ N)^2}$

$= 3.853\ N$

$\theta = \tan^{-1}\left(\frac{3.592\ N}{1.396\ N}\right)$

$= 68.8°$