$\vec{A} = 4\hat{i} - 2\hat{j}$ $\quad\quad$ $\vec{B} = -3\hat{i} + 5\hat{j}$

WB 22-3
1

Find: $\vec{F} = \vec{A} - 4\vec{B}$

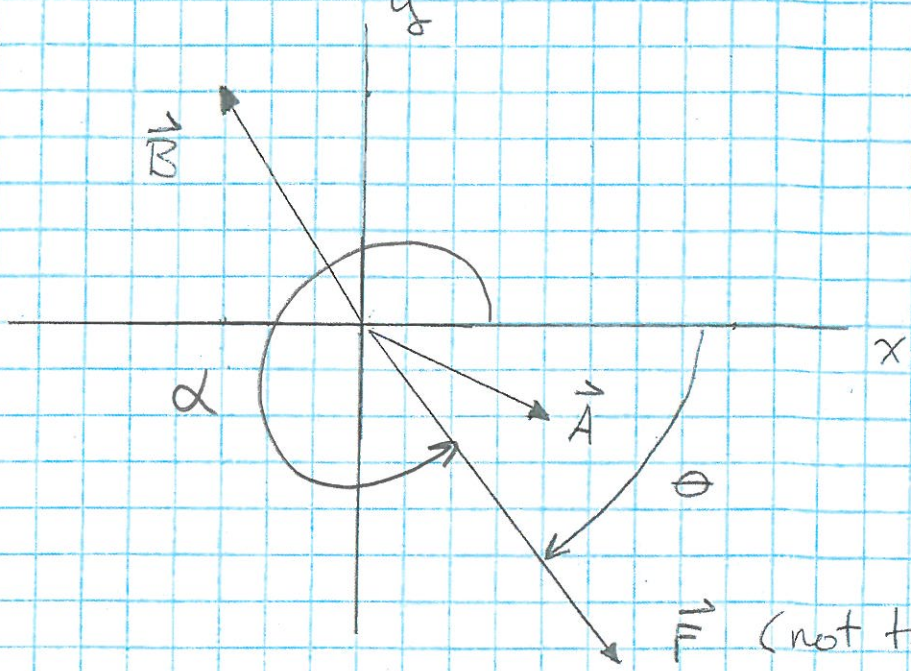
a.) $\vec{F} = \vec{A} - 4\vec{B}$

$= (4\hat{i} - 2\hat{j}) - 4(-3\hat{i} + 5\hat{j})$

$= (4\hat{i} - 2\hat{j}) + (12\hat{i} - 20\hat{j})$

$\vec{F} = 16\hat{i} - 22\hat{j}$

b.)



$F = \sqrt{F_x^2 + F_y^2} = \sqrt{16^2 + 22^2} = 27.20$

$\theta = \tan^{-1}\left(\frac{|F_y|}{F_x}\right) = 53.97°$ below +x axis

Or, $\alpha = 360° - \theta = 306.03°$ CCW from +x axis