Vector addition – with vectors described in three different ways

Way 1: Graphical

Find $\vec{A} + \vec{B}$ and $\vec{A} - \vec{B}$

Way 2: Components

Find $\vec{A} + \vec{B}$ and $\vec{A} - \vec{B}$

$\vec{A} = 4\hat{i} + 3\hat{j} - 2\hat{k}$

$\vec{B} = 2\hat{i} - 3\hat{j}$

Way 3: Length and direction

$\vec{A}$ has length 2 and makes an angle of $35^\circ$ with x-axis

$\vec{B}$ has length 3 and makes an angle of $70^\circ$ with x-axis

Drawing a free body diagram

- show the forces on particle of mass $M$
- due to particles of mass $m_1$ and $m_2$