

3 Forces $\mathbf{F}_1 = (2\mathbf{i} + 9\mathbf{j}) \text{ N}$ and $\mathbf{F}_2 = (-\mathbf{i} + \mathbf{j}) \text{ N}$ act on a particle. A third force \mathbf{F}_3 acts so that the particle is in equilibrium under the action of the three forces.

Find the force \mathbf{F}_3 .

[2]