Answer on Question #68437, Physics / Mechanics | Relativity

Question:

Two forces act on a point object as follows: 100N at 170 deg and 100N at 50deg. Find the resultant force

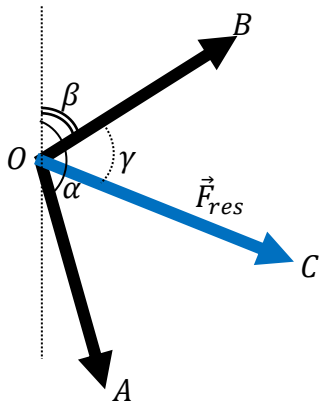
a) 110N at 100 deg

b) 100N at 110 deg

c) 110N at 50 deg

d) 100N at 50 deg

Solution:



First, let's calculate the angle between these forces.

$\alpha = 170°, \quad \beta = 50°, \quad \alpha - \beta = 120°.$

As the forces are equal by their absolute value we may conclude that the resultant force will act along the bisecting line OC. Then the angle $\gamma = \frac{\alpha-\beta}{2} = 60°$ and therefore the resultant force acts at $\beta + \gamma = 50° + 60° = 110°$. It is option b).

Answer:

b) 100N at 110 deg