Answer on Question #51963, Physics, Other

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

Answer:

Vertical component =100sin170^o + 100sin50^o =100(sin10^o+sin50^o)=93.96N

Horizontal component = 100cos170^o +100cos50^o =100(-cos10^o+cos 50^o)=-34.20N.

$$\text{Resultant} = \sqrt{(\text{Vertical component})^2 + (\text{Horizontal component})^2} = \sqrt{93.96^2 + (-34.20)^2} \approx 100N$$

$$tg\alpha = \frac{\text{Vertical component}}{\text{Horizontal component}} = \frac{93.96}{-34.2} = -2.74 \Rightarrow \alpha \approx 110^0$$

α is an angle of the resultant force with the positive x –axes

So the resultant force is 100N at 110^o