

ENGINEERING MECHANICS PROBLEM

The following forces act on a point:-

1. 200 kg inclined at 20 degrees towards north of East
2. 25 kg towards north
3. 300 kg inclined at 40 degrees towards north of west
4. 350 kg inclined 40 degrees towards south of west.

Calculate the
Resultant force.

RESULTANT FORCE

$$\text{Resultant force } F_z = \sqrt{(F_x)^2 + (F_y)^2 + 2F_x F_y \cos 90^\circ}$$

$$F_x = 200 \cos 20^\circ + 250 \cos 90^\circ + 300 \cos 140^\circ + 350 \cos 220^\circ$$
$$= -324.7 \text{ N}$$

$$F_y = 200 \sin 20^\circ + 250 \sin 90^\circ + 300 \sin 140^\circ + 350 \sin 220^\circ$$



$$F = 454.4 \text{ N}$$

Engineering Mechanics Solved Problems Tayal

Léo Pomar



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