

Lesson 4

More Force Diagrams & Vector Summations

We want to cover force diagrams from every which direction so that when you are in Physics 231, no matter which way they are presented, you will not be confused.

Example 1

Add three following vectors graphically (use 1 cm = 10 N) and mathematically (i.e. Calculate the resultant vector):

\vec{a} : 70 N, 40° from + X axis

\vec{b} : 80 N, 60° from + Y axis

\vec{c} : 120 N, -50° from - Y axis

After going over this in the lecture, try:

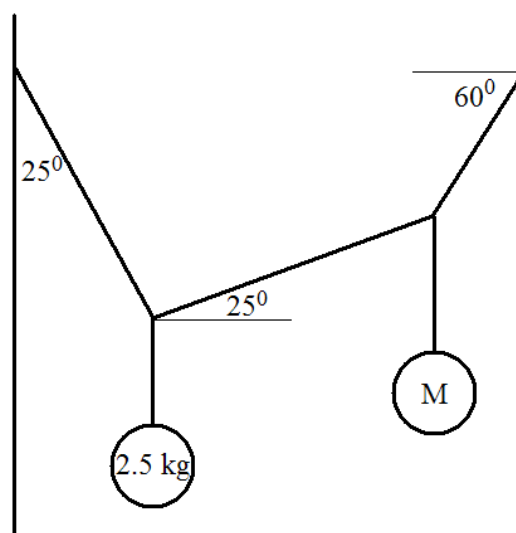
\vec{a} : 50 N, 40° from - X axis

\vec{b} : 100 N, 30° from + Y axis

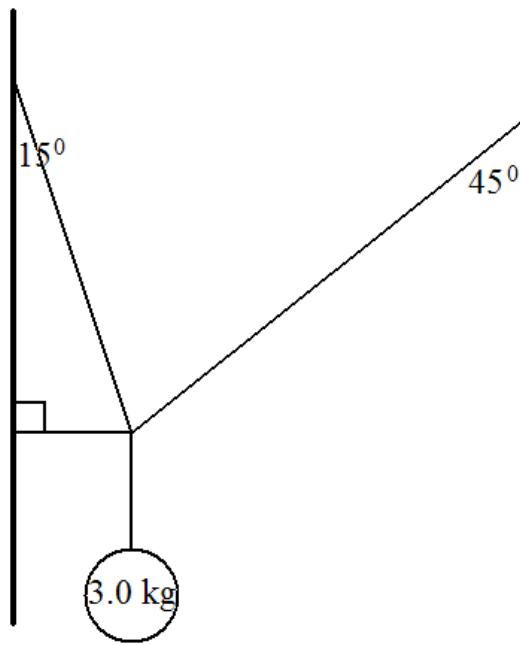
\vec{c} : 60 N, -20° from + X axis

Calculate the fourth vector, \vec{d} so that the system becomes in equilibrium.

Example 2 – Calculate “M”



Example 3 – Calculate the tension in each cord.



Example 4 – Force Table

Hanger 1: Load 100 g at 45°

Hanger 2: Load 150 g at 115°

Hanger 3: Load some mass and find the angle so that the system is in equilibrium. Measure the mass.

Using the information of Hanger 3 and its added mass, and all the angles measured, calculate the masses of Hanger 1 & 2.

