Answer on Question #41905, Physics, Other

The sum of two forces acting at a point is 16N. If the resultant is 8N and its direction is perpendicular to minimum force, then find the forces.

Solution:

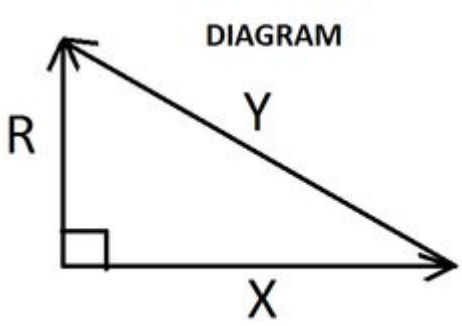
Given:

$Sum\ of\ forces = 16$ N,

$Resultant\ of\ forces = 8$ N,

$X =?$,

$Y =?$



$$X + Y = 16$$
$$R = 8$$

Then

$$R^2 = Y^2 - X^2 = (Y - X)(Y + X)$$
$$\frac{R^2}{16} = Y - X$$

So,

$$Y - X = \frac{64}{16} = 4$$
$$X + Y = 16$$

Solving system of equations

$$Y = 4 + X$$
$$X + 4 + X = 16$$
$$2X = 12$$
$$X = 6$$
$$Y = 4 + 6 = 10$$

Answer. $X = 6$ N, $Y = 10$ N.