



Subject - Science

Week – May IV

Grade -10

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Resultant Force

Study the lesson of Resultant force in your textbook and answer the questions.

1. What is Resultant force ?

1. Resultant force of two collinear forces

i. Resultant of two collinear forces acting along the same direction

When two collinear forces act along the same direction, the resultant of the two forces is equal to the sum of the two individual forces with a direction in the direction of forces

eg

$$\begin{array}{l} \text{The resultant force} \\ = 10\text{N} + 10\text{N} \\ = 20\text{N} \end{array}$$

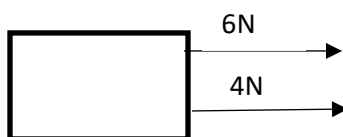
ii. Resultant of two collinear forces acting along opposite directions

When two collinear forces are exerted on an object in opposite directions, The resultant is given by their difference, with a direction in the direction of the larger force

$$\begin{array}{l} \text{The resultant force} \\ = 25\text{N} - 20\text{N} \\ = 5\text{N} \end{array}$$

2. Resultant of two parallel forces

In order to find the resultant of two parallel forces acting along the same direction, the two forces must be added.

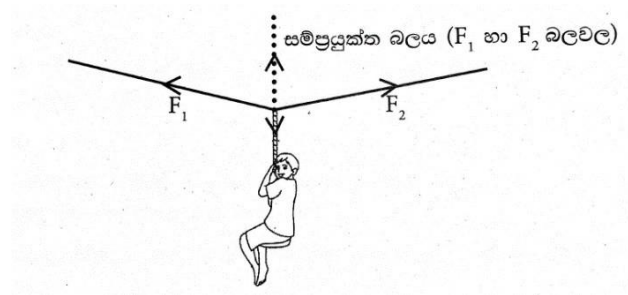


$$\begin{array}{l} \text{The resultant force} \\ = 6\text{N} + 4\text{N} \\ = 10\text{N} \end{array}$$

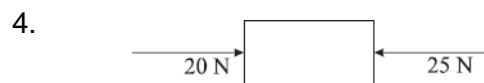
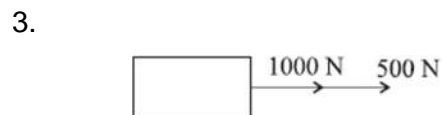
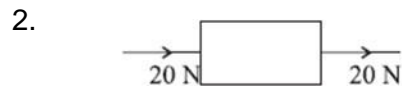
3.Resultant of two inclined forces

The angle between the two forces affects the resultant of two inclined forces. As the angle between the two forces decreases, the resultant force increases. The direction of the resultant force acts in the direction between the two forces.

Eg- when a person hanging on a string



Find the Resultant force.

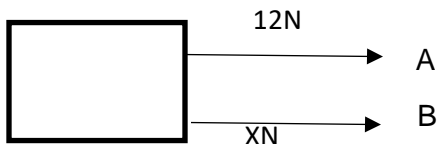


6. Ten people applied 5000N of force on stalled bus. If the limiting frictional force of the bus is 3500N, what is the force that should act on the bus to move it?

1. 5000N
2. 3500N
3. 1500N
4. 4500N

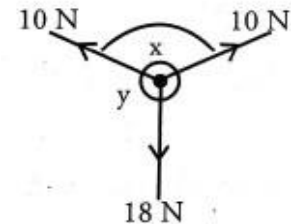
7. When a trolley placed on a table is pulled by two strings attached to it keeping the two strings parallel to each other, the resultant force is 20 N.

The force exerted on the string A is 12 N. Find the force exerted by the string B.

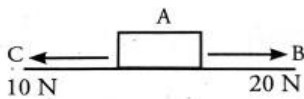


8. Three inclined forces acting on an object have been shown in the figure below. What will happen when force of 18N changes to 20N?

1. Change the point of Y
2. Change the angle of X
3. Position of the Y changes to the direction of the 20N and the angle of X decreases.
4. Position of the Y changes to the direction of the 20N and the angle of X increases.

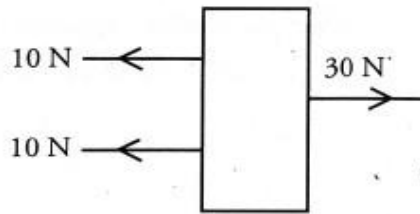


9. What is the resultant of two collinear forces acting along the wooden block?



1. 10N
→
2. 10N
←
3. 10N
→
4. 20N
→

10. What is the resultant force of these three forces?



1. 10N
2. 20N
3. 10N
4. 10N

11. Two parallel forces of 20N applied along the same direction on the wooden block. What is the force that can be applied in the opposite direction so as to make the resultant force zero.

1. 40N to same direction
2. 40N to opposite direction
3. 20N to opposite direction
4. 20N to same direction