

Example 2



Why is it that a slow continuous increase in the downward force breaks the string above the massive ball, but a sudden increase breaks the lower string?

Example 3



Why does the downward motion and sudden stop of the hammer tighten the hammerhead?

Preview from Notesale.co.uk
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Example 4

Unloading a truck

<http://www.facebook.com/photo.php?v=589447201066942>



Adding forces

Adding forces on a straight line:

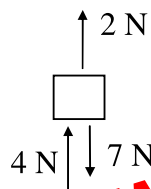
- Choose a sign convention. e.g. Take upward as positive, etc.
- Assign a $+/-$ sign to each force according to its direction.
- Add all forces together with their signs. The sum is the **resultant** force.

$$F = F_1 + F_2 + F_3 + \dots$$

Example 1

Find the net force acting on the body.

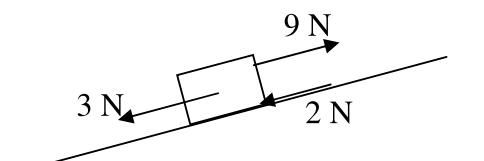
(a)



(b)



(c)



solution

- (a) Take upward as positive.

$$\text{Net force} = 2 + 4 + (-7) = -1 \text{ N (downward)}$$

- (b) Take to the right as positive.

$$\text{Net force} = 15 + (-6) + (-7) = 2 \text{ N (to right)}$$

- (c) Take uphill as positive.

$$\text{Net force} = 9 + (-3) + (-2) = 4 \text{ N (uphill)}$$

Assign a correct $+/-$ sign to every force.