Sabaragamuwa Provincial Department of Education-Weeekly school

Science

Grade 10

Week – February III

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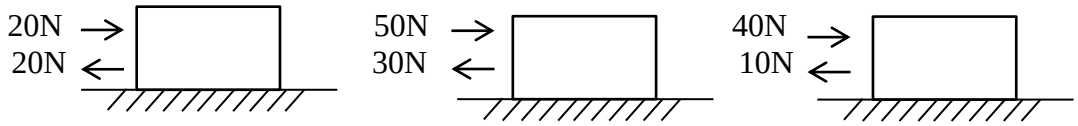
Newton's laws of motion

1. Give 5 occasions; that we apply a force in our day- to-day activities.

2. We apply 10N force on this object. But it remains still. Explain the reason.

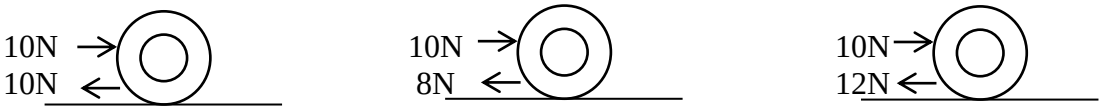
3. Mention balanced forces applied in the below instances.



4. What is Newton's first law?

5. Write 2 ways of an object exists, as long as an unbalanced external force is not acting on that object.

6. The forces are applied on the moving tires as given in the below diagrams. Mention the nature of motion in each instance.



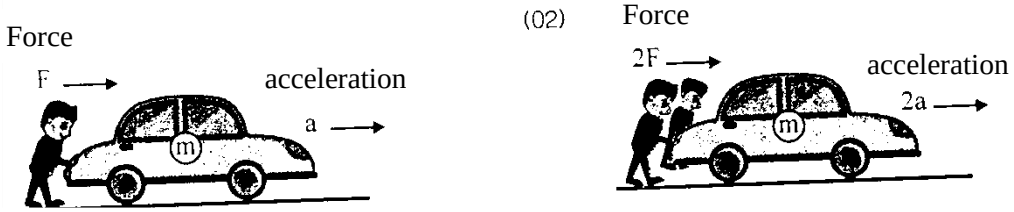
7. Write how we get protection from wearing a seat belt during riding a vehicle.

8. What is Newton's second law?

9. Mention the relationship between acceleration of an object and the unbalanced force acting on it.

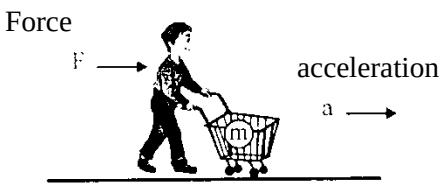
10.

(a) Compare the acceleration of below two occasions.

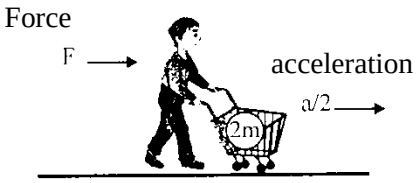


(b) What is the relationship between acceleration (**a)** and force **(F)**?

(c) Mention how the acceleration changes with increasing mass on the trolley.



Mass of trolley - m



Mass of trolley - 2m

(d) Give the relationship between **a** and **m** using the above figure.

11. What is the relationship among mass (m), acceleration (a), and unbalanced force (F) of an object according to the Newton's second law.

12. Introduce 1N.

13. Answer the below questions using F=ma equation.

    (a) What is the unbalanced force required to give an acceleration of 2 ms^{-2} to a 20 kg mass?

    (b) A force of 100N is applied on a body of mass 20 kg. Find the acceleration of the body.

    (c) What is the momentum of a body of mass 5 kg, when the body is at rest.