

The pull or push acting on a body which tends to change its state of rest or motion, its shape or size. Force is usually denoted by the letter 'F'.

Ex: Pulling a rubber band to expand, throwing of a football.

Force is expressed in gram-force, Kgf, dyne, newton (N). The SI unit of force is newton.

Force is measured with the help of spring balance.

Effect of force:

- i) Force can not change the mass of a body.
- ii) Force can produce motion.
- iii) Force can stop motion.
- iv) Force can change speed and direction of motion.
- v) Force can change the shape and size of an object.

Types of force:

There are two types of forces.

- i) Contact force: When two interacting bodies are in physical contact like applied force, normal force, tension, muscular force, collision, friction and mechanical force.
- ii) Non contact force: When two interacting bodies act at a distance like magnetic force, electrostatic force and gravitational force.

Students please read the explanation of these forces from the book.

Friction: The force that opposes or resists the relative motion between two bodies.

Properties of friction:

- i) Friction produces heat.
- ii) Friction causes wear and tear of the surfaces in contact.
- iii) Friction can slow down the movement of the body and ultimately stops a moving body.

Factors affecting friction:

i) Nature of the surfaces in contact.

ii) Weight of the body.

Dear students, just have a look on the activities related to the factors.

Types of friction:

i) Static friction: Friction that exists when the bodies in contact are at rest.

ii) Kinetic friction: Friction that exists between two bodies in motion.

iii) Sliding friction: The friction that exists between a body and a surface when the body slides over each other.

iv) Rolling friction: The friction that exists an object and the surface rolling over.

[See the book]

Methods of increasing friction:

i) By grooving

ii) By making the surface rough

Methods of reducing friction:

i) Polishing

ii) Lubricating

SHORT AND PRECISE:

A. Show the following processes in form of the flowcharts:

→ Answer given in the note

B. Give reasons for the following statements

→ From the examples given in the text book

C. Answer in short

1. → When the applied force is not sufficient, the object may not move and is said to be at rest.

2→ Given in the note

3→ Yes, Magnet can attract another magnet and on metals like iron, nickel, cobalt etc.

4. → Page no. 43 in book

5. → A solid exerts frictional force.

6. → Page no 49 in book.

7. → Lubricants form a thin layer between the two surfaces in contact and also decreases the unevenness of the surfaces. In this way it reduces friction.

8. → Page no 51 in book

9. → Aeroplanes have streamline shape to reduce the friction while moving through the air, so that it can move easily.

At length:

A. → In the note as well as in the text book

B. → In the note as well as in the text book

C. → In the note as well as in the text book

D. → In the note as well as in the text book

BE PROMPT

A. Fill in the blanks:

1. → rest 2. → interact 3. → reduce 4. → road (surface)

5. → energy 6. → wear out of, time to time

B. True or False:

1. → F 2. → T 3. → T 4. → F 5. → T 6. → T

C. Choose the correct option.

1. → d 2. → c 3. → c 4. → b 5. → c 6. → d

D. Match the column:

1. → e 2. → d 3. → a 4. → b 5. → c

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