

GENERAL SCIENCE NOTES FOR 7TH CLASS (FOR ISLAMABAD)

UNIT#08: FORCES AND MOTION
SHORT QUESTIONS

Define average speed. Write unit of speed.

Average speed of a body is equal to total distance covered by body in total time taken by it.

$$\text{average speed} = \frac{\text{Total Distance}}{\text{Total Time}}$$

SI unit of speed is meter/second (m/s).

If a cyclist covers 15 kilometers distance in 1.5 hours. What is his speed in kilometer per hour (km/h) and in meter per second (m/s)?

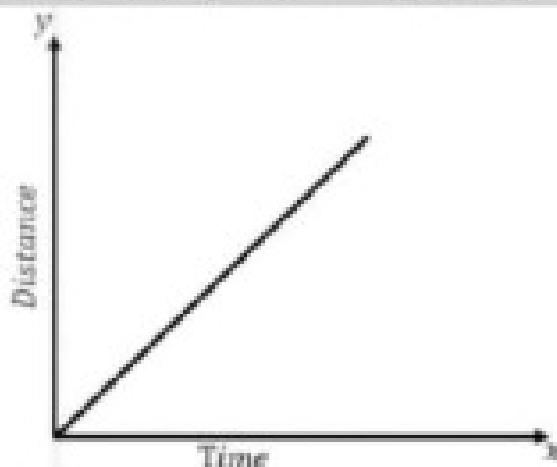
$$\begin{aligned} 1 \text{ km} &= 1000 \text{ m} \\ 1 \text{ hr} &= 60 \times 60 \\ &= 3600 \text{ sec} \\ 1.5 \text{ hr} &= 3600 + 1800 \\ &= 5400 \end{aligned}$$

$$\begin{aligned} \text{Speed} &= \frac{\text{Distance}}{\text{Time}} \text{ (In km/h)} \\ &= \frac{15}{1.5} = \frac{15 \times 10}{15} = 10 \text{ km/h} \end{aligned}$$

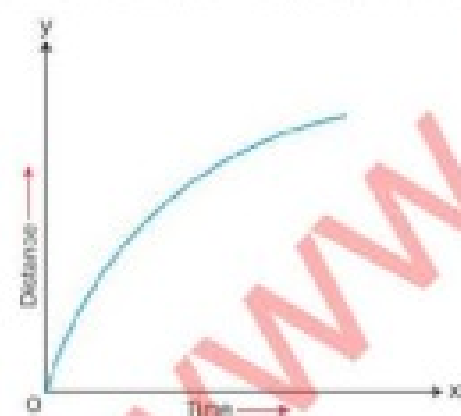
In m/s:

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}} = \frac{15000}{5400} = \frac{50}{18} = \text{Approximately } 28 \text{ m/s}$$

Draw the distance time graph for increasing speed of the car?



A car is moving with uniform speed, driver apply brakes to slow it down after some time and finally stops. Sketch a distance time graph to represent this motion of the car.



Explain briefly, why action and reaction forces cannot cancel each other.

Reaction forces are equal and opposite, but they are not balanced forces because they act on different objects so they don't cancel out each other.

How do birds fly in the sky? Briefly explain with action reaction pair concept.

- The flying of a bird is based on action and reaction forces.
- The birds push the air down with wings to get an equal and opposite reaction in the upward direction which helps them to fly.

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GENERAL SCIENCE NOTES FOR 7TH CLASS (FOR ISLAMABAD)

Define force and its SI unit.

Force is an agent that pulls or pushes an object. In SI system, unit of force is newton (N).

Look at the distance time Group.

a) Which part is representing uniform motion?

AB part is representing uniform motion.

b) Which part is representing decreasing speed?

BCD part is representing decreasing speed.

c) Which part of body is at rest?

A part of body is at rest.

LONG QUESTIONS

Draw distance time graph for (a) Body at rest, (b) with uniform speed, (c) moving increasing speed and (d) decreasing speed.

(a) Body Is At Rest

(b) With Uniform Speed

(c) Moving Increasing Speed

(d) Decreasing Speed.

Define force and its unit. Give it's example to explain different effects of forces on a body.

- Force is an agent that pulls or pushes an object. In SI system, unit of force is newton (N).
- It can speed up or slow down the moving object. e.g., catching a ball hit by a batsman.
- It can change the direction of motion of the body. e.g., the opening or closing the door.
- It can change shape or size of the body. e.g., conversion of a metal into sheet.

With the help of examples, show that forces act in pair.

- Gun pushes the bullet and bullet pushes it back (recoil).
- Student pulls on desk, desk pulls on student.
- Standing on the ground.
- The upward thrust of a rocket.
- A hammer pushes a nail
- Magnets attract paper clip.

قوت اور اس کی اکائی کی وضاحت کریں۔ جسم پر قوتوں کے مختلف اثرات کی وضاحت کے لیے اس کی مثال دیں۔

- قوت ایک ایسا ایجنٹ ہے جو کسی چیز کو کھینچتا یا دھکیلتا ہے۔ SI نظام میں، قوت کی اکائی نیوٹن (N) ہے۔
- یہ حرکت پذیر چیز کو تیز یا سست کر سکتا ہے۔ مثال کے طور پر، ایک بے باز کی طرف سے ہٹ گیند کو پکڑنا۔
- یہ جسم کی حرکت کی سمت بدل سکتا ہے۔ مثال کے طور پر، دروازہ کھولنا یا بند کرنا۔
- یہ جسم کی شکل یا سائز کو تبدیل کر سکتا ہے۔ مثال کے طور پر، شیٹ میں دھات کی تبدیلی۔

مثالوں کی مدد سے دکھائیں کہ قوتیں جوڑے میں کام کرتی ہیں۔

- بندوق گولی کو دھکیلتی ہے اور گولی اسے پیچھے دھکیلتی ہے (پیچھے ہٹنا)۔
- میز پر کھینچتا ہے، ڈیسک طالب علم پر کھینچتا ہے۔
- زمین پر کھڑا ہے۔
- راکٹ کا اوپر کی طرف زور۔
- ایک ہتھوڑا ایک کیل کو دھکیلتا ہے۔
- میگنےٹ پیپر کلپ کو اپنی طرف متوجہ کرتے ہیں۔