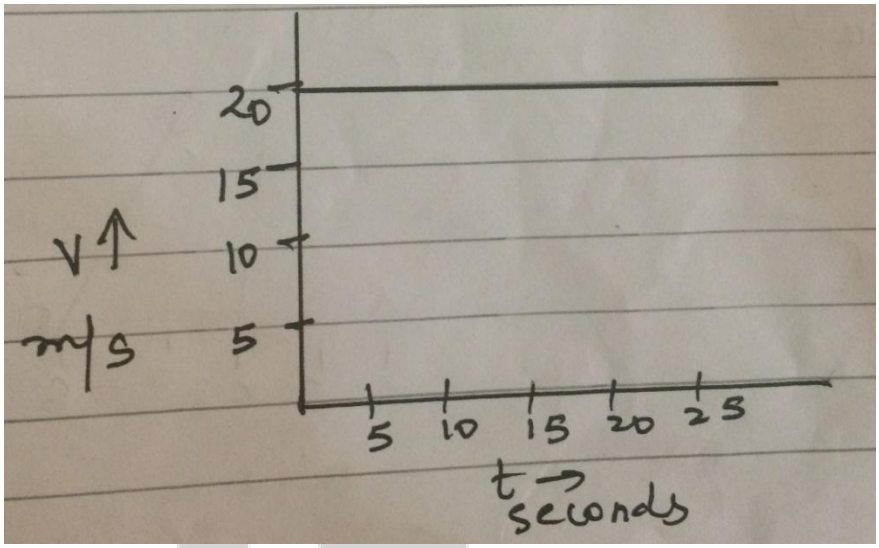
HOLIDAY HOMEWORK CLASS IX
PHYSICS

Using the formulae and equations solve the following numericals.

1. A particle moves three quarters of a circle of radius r. What is the magnitude of displacement?
2. A car starts from rest and attains a velocity of 10 m/s in 40 seconds. The driver applies brakes and slows down the car to 5 m/s in 10 seconds. Find the acceleration of the car in both the cases.
   [Ans. 0.25 m/s^2 , -0.5 m/s^2]
3. An insect moves along a circular path of radius 10 cm with a constant speed. If it takes 1 minute to move from a point on the path to the diametrically opposite point, find
   a) The distance covered
   b) The speed
   c) The displacement
   d) The average velocity
   [Ans. a) 31.4 cm. b) 31.4 cm/min c) 20 cm d) 20 cm/min]
4. A body is moving uniformly with a velocity of 5 m/s. Find graphically the distance travelled by it in 5 second. [Ans. 25m]
5. A car is moving on a straight road with uniform acceleration. The following tables gives the speed of the car at various instant of time.

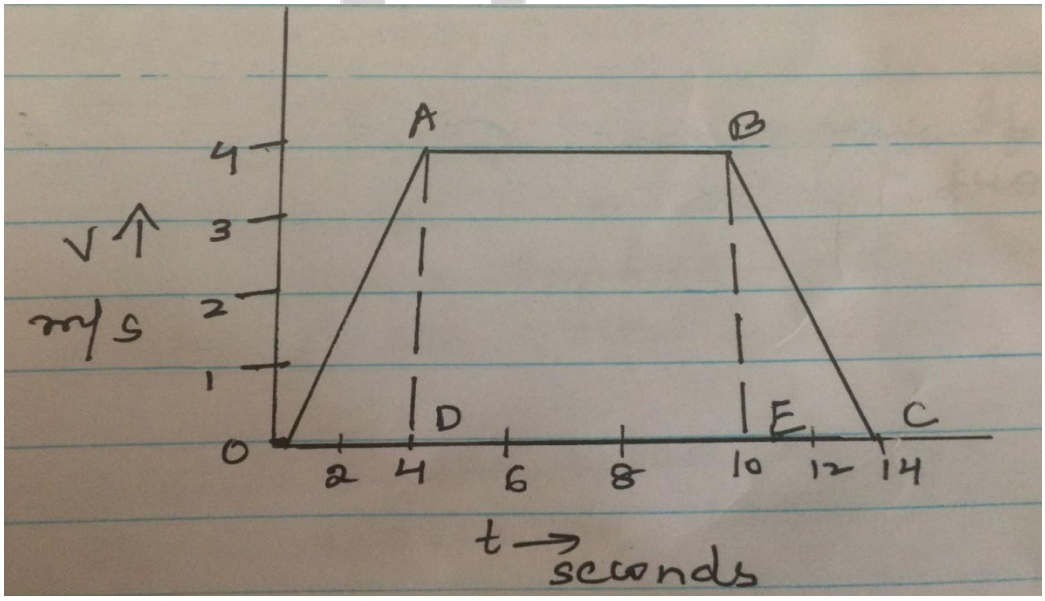
Time (s)	0	10	20	30	40	50
Speed (m/s)	5	10	15	20	25	30

   Draw the speed time graph choosing a convenient scale. Determine a) Acceleration of the car b) Distance travelled by car in 50 seconds. [a) Ans. 0.5 m/s^2 b) 8.75 m]
6. A body is accelerating at a constant rate of 10 m/s^2. If the body starts from rest, how much distance will it cover in 2 seconds. [Ans. S= 20 m]
7. A car acquires a velocity of 72 km/h in 10 seconds starting from rest. Find a) The accn b) Average velocity c) Distance travelled. [Ans. 2 m/s, b) 10 m/s, c) s=100 m]
8. The brakes applied to a car produces an acceleration of 6 m/s^2 in the opposite direction to the motion. If the car takes 2 seconds to stop after applying brakes, calculate distance it travels during this time. [Ans. 12 m]
9. A train travels the first 30 km of 120 km track with a uniform speed of 30 km/h. What would be the speed of the train to cover the remaining distance of the track so that its average speed is 60 km/h for the entire trip? [Ans. 90 km/h]
10. Velocity time graph given shows the motion of a cyclist. Find a) Its acceleration b) Velocity c) Distance covered in 15 seconds.
[Ans. a) 0 b) 20 m/s c) 300 m]

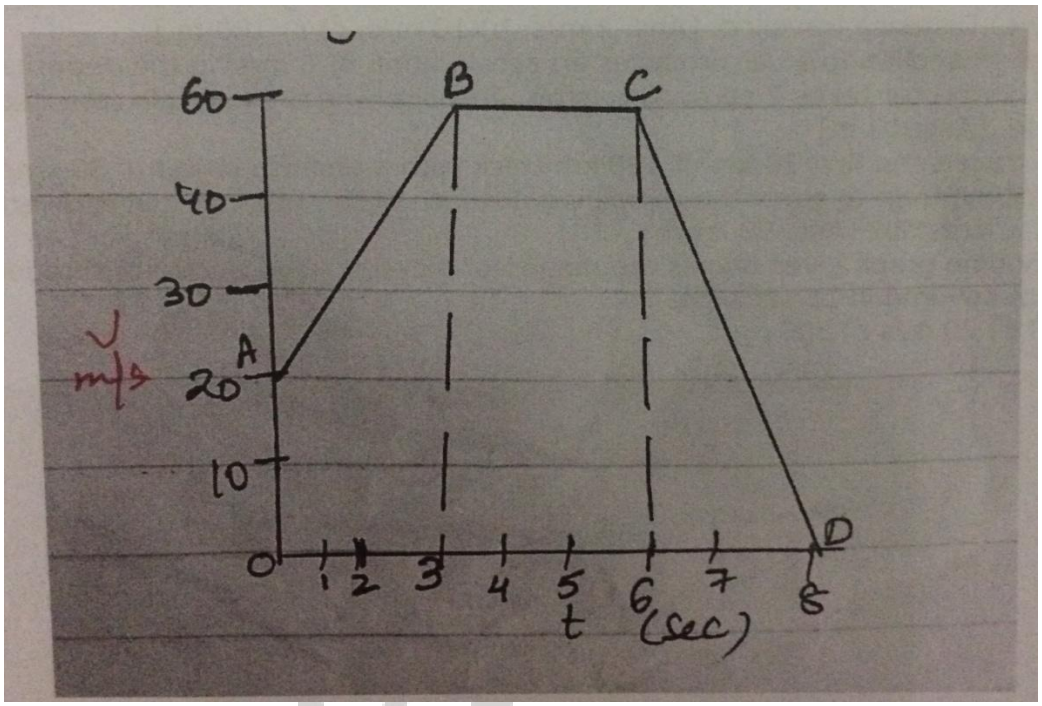


11. A child drops a ball from a height of 10 m. Assume its velocity increases at the rate of 10 m/s^2. Find a) Velocity with which the ball strikes the ground b) Time taken by the ball to reach the ground.
[Ans. a) 14.14 m/s B) 1.414 sec]

12. Velocity time graph for motion of body is shown below:
a) Which part of the graph shows accelerated motion? Also calculate the accn. B) Which part of the graph shows retarded motion? Also calculate retardation c) Calculate the distance travelled by the body in first 4 seconds of the journey.



13. The following is v-t graph for a moving body.



Find a) Velocity with which the motion started? b) Velocity of body at point C c) Acc acting on the body between A and B d) Accn acting on the body between B and C.

14. A train is moving with an initial velocity of 30 m/s. The brakes are applied so as to produce a retardation of 1.5 m/s^2. Calculate the time in which it will come to rest. [Ans. 20 seconds]
15. The driver of a car travelling at 36 km/h applies the brakes to deaccelerate uniformly. The car stops in 10 seconds. Plot the speed-time graph for this period. Find the distance travelled by the car during this period by calculating the area under the graph. [Ans. 20m]
16. A train is travelling with a velocity of 72 km/h. The brakes are applied to retard the motion of the train uniformly. If the train is stopped after 50 m away from the place where brakes were applied. Find the retardation of the train. [Ans. -4 m/s^2]
17. Calculate the speed of the tip of second's hand of a watch of length 1.5 cm. [Ans. 0.16 cm/s]
18. A cyclist goes once round on a circular track of diameter 105 m in 5 minute. Calculate his speed. [v= 1.1 m/s]
19. Differentiate between linear motion and circular motion.
20. Why uniform circular motion is known as an accelerated motion?
21. Do all numerical from Lakhmir Singh (Motion Chapter)
22. Study the timings of metro rail between stations. Calculate the average speed.
23. Draw a graph to show the change in speed of the metro between two consecutive stations. [the graph may be only on indication of the variation of speed with time.]

CHEMISTRY

Learn the symbols names and atomic number of the first 18 elements in the periodic table.

Write the procedure of all the experiments in your practical file from the lab manual along with the diagrams given.

1. Different types of chemical reactions.
2. Boiling and melting point.
3. Compounds and mixtures.
4. Separation of components of a mixture.
5. True solution, colloids and suspension.

BIOLOGY

Write the procedure and diagram of the following:

1. Onion peel.
2. Cheek cells.
3. Parenchyma, collenchyma, sclerenchymatous tissue.
4. Striated muscles.
5. Unstriated muscle.
6. Cardiac muscle fiber.

MATHS

Project-1

1. On an A-4 sheet prepare the contribution of the following mathematicians

   a) Aryabhatta (R.No. 1-10)

   b) Euclid (R. No. 11-20)

   c) Ramanujan (R. No. 21-30)

   d) Pythagoras (R. No. 31-40)

   e) Shakuntala Devi (R. No. 41 onwards)

2. Find five two dimensional and three dimensional objects each from household items which you use daily. Find out their volumes and surface areas.

Word Box

Direction: Complete the statements by writing the word from word box on the spaces provided.

volume	height, length, breadth	surface area	three
squares	capacity	edge vertex	a^2
circumference	area		

1. There are _____ pair of identical faces in a cuboid.
2. All six faces of a cube are _____ and identical.
3. The lateral surface area of a cuboid is twice the product of _____ and the sum of _____ and _____ of a cuboid.
4. The sum of the areas of the faces of a solid is called its _____ .
5. _____ is the amount of region occupied by a solid.
6. If each side of a cube is a, then the area of each of its face is _____ .
7. The lateral surface area of a cylinder is equal to the product of _____ of base and height of cylinder.
8. The volume of a cuboid is the product of the _____ of the base and the height.
9. The quantity that a container holds is known as its _____ .
10. The line segment where the two adjacent faces of a cuboid meet is called its _____ and the point where any three edges meet is called its _____ .

Multiple Choice Questions

■ **Tick (✓)the correct answer for each of the following:**

1. The side of a cube whose surface area is 726 cm^2 is

   (*a*) 10 cm (*b*) 11 cm (*c*) 12 cm (*d*) 13 cm

2. The height of a cylinder whose radius is 7 cm and the total surface area is 968 cm^2 is

   (*a*) 10 cm (*b*) 12 cm (*c*) 15 cm (*d*) 20 cm

3. The height of a cuboid whose volume is 756 cm^3 and base area is 63 cm^2 is

   (*a*) 6 cm (*b*) 10 cm (*c*) 12 cm (*d*) 24 cm

4. The number of cubes of side 8 cm that can be placed in the cuboid of dimensions 64 cm × 50 cm × 32 cm is

(*a*) 200 (*b*) 120 (*c*) 100 (*d*) 80

5. If each edge of a cube is doubled, its surface area will

(*a*) become twice (*b*) become four times (*c*) become eight times (*d*) remain unaltered

6. If each edge of a cuboid is halved, its volume will

(*a*) become half (*b*) become one-fourth (*c*) become one-eighth (*d*) remain unchanged

7. The volume of a rectangular tank is 1596 m^3. If its length and breadth are respectively 12 m and 9.5 m, its depth is

(*a*) 11 m (*b*) 12 m (*c*) 13 m (*d*) 14 m

8. The volume of a cube whose total surface area is 294 cm^2 is

(*a*) 216 cm^3 (*b*) 343 cm^2 (*c*) 512 cm^3 (*d*) 729 cm^2

9. A rectangular water tank is 2 m 50 cm by 1 m 60 cm by 1 m 40 cm. How many liters of water does it hold when filled to the brim?

(*a*) 5,600 *l* (*b*) 56000 *l* (*c*) 5,60,000 *l* (*d*) 560 *l*

10. A cardboard box is 1.5 m long, 84 cm wide and 60 cm high. The number of soap bars measuring 6 cm × 4 cm × 3.5 cm that it can hold is

(*a*) 7500 (*b*) 8000 (*c*) 8500 (*d*) 9000

Match the Columns

A. Match the columns by placing the correct letter in the square boxes given below:

Column A	Column B
(*i*) *l* and *b* remaining the same, *h* is doubled.	(*a*) volume is one-eighth
(*ii*) *l*, *b* and *h* of a cuboid is tripled.	(*b*) volume is 16 times
(*iii*) edge '*a*' of a cube halved.	(*c*) volume is 4 times
(*iv*) edge '*a*' of a cube one-fourth.	(*d*) volume is two times
(*v*) *r* and *h* of a cylinder becomes one-third.	(*e*) surface area is 9 times
(*vi*) *r* remaining the same, *h* becomes four times.	(*f*) surface area is one-ninth
(*vii*) *h* remaining the same, *r* becomes four times.	(*g*) surface area is one-sixteenth

(*i*) ⟶ ☐ (*ii*) ⟶ ☐ (*iii*) ⟶ ☐

(*iv*) ⟶ ☐ (*v*) ⟶ ☐ (*vi*) ⟶ ☐

(*vii*) ⟶ ☐

Puzzle

■ **Solve the following crossword puzzle, hints are given below:**

Across

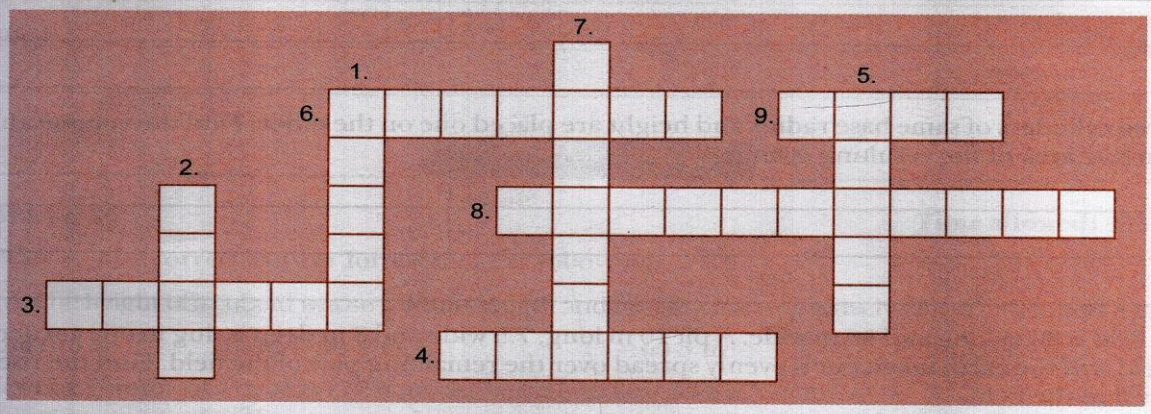
3. A three dimensional shape having six faces, eight vertices and 12 edges.

Down

1. A three dimensional figure is also called _____.

4. The product of length, breadth and height of a cuboid.
6. _____ area of cuboid = $2(lb + bh + hl)$ sq. units.
8. We form cylinder by combination of two circles and one _____ shape.
9. The region occupied by a plane closed simple figure.

2. Cuboid with equal length, breadth and height.
5. _____ angle is an angle whose measure is 90°.
7. The _____ surface area of cylinder is $2\pi rh$.



Suggested Activities

Derive geometrically the formula for calculating
(*a*) surface area and volume of a cuboid.
(*b*) surface area and volume of a cylinder.

Quiz

Rapid Fire

State true (T) or false (F) for each of the following statements.

1. The lateral surface area of a cube is $3a^2$.
2. If we join two cubes each of edge x, then the total surface area will be double of one such cube.
3. The number of edges of a cuboid is 12.
4. If we double each edge of a cube, its surface area becomes four times.
5. If each dimension of a cuboid is halved, its volume also becomes half of the original volume.
6. To find the total cost of painting a solid object, we have to find its volume.
7. If we melt a cylinder to form a cube, then the volume of the two solids will be same.
8. The volume of a cylinder is obtained by multiplying the area of its base by the height.
9. Two objects of same volume will have same surface area also.

Thinking Skills

10. If we interchange the length of the base and the height of a cuboid to get another cuboid, will its lateral surface area change? Will its volume change? Justify.

हिन्दी ग्रीष्मावकाश कार्य

1. महादेवी वर्मा द्वारा रचित 'मेरा परिवार ' कहानी संकलन पढ़ने के पश्चात किन्हीं पाँच कहानियों के मुख्य पात्रों के नाम व कहानी का सार अपनी पुस्तिका में लिखें।
2. प्रतिदिन हिंदी समाचार पत्र पढ़ें।
3. महादेवी वर्मा की अन्य प्रमुख रचनाओं के नामों की सूची बनाइए।

GERMAN

1. Learn and write Unregelmapige Verben given Pg. Nr 101,102,103 and Verben mit Prapositionen 104,105
2. Arbeitsbuch Seite Nr. 34, 35 Training: Lessen, Hören

SPANISH

1. Find information and prepare PPT on one of the state of spain and one of the Spanish Speaking Countries.

ENGLISH

1. Read as many books as you can from the given list and maintain a vocabulary list and use the dictionary to find the meanings. This will improve your reading and writing skills.

Jane Eyre by Charlotte Bronte Mill on the Floss by George Eliot City of Djinns by William Dalrymple	From Heaven Lake by Vikram Seth To Kill a Mocking Bird by Harper Lee

2. Try and read one or two newspaper articles every day.
3. Try and watch some of the movies listed below to improve your listening skills.

My Fair Lady	Candy Jar
Chariots of Fire	Back to the Future
High School Musical	Children of Heaven
Roman Holiday	Queen of Katwe
The King's Speech	

Listen to some of the songs from the selection given below

Believe in Yourself	Rise up –Jojo
Flashlight - Jessie J	Safe and Sound
How Far I'll Go	School Day- Chuck
Make a Difference- Linda Dawis	Skyscraper-Demi Lovato
Never Give Up- Bang Guk & Zelo	Teacher- Jethro Tull
Never Miss a Beat- Kaiser Chiefs	Thanks to You- Tyler Collin
Never Say Never- Justin Bieber	The Climb- Miley Cyrus
Put it out for Good- Amy Ray	We are Unity
Revelation- Kari Jobe	Who Says- Selena Katina
	You Rise me Up- Josh Gorban

SOCIAL SCIENCE

1. Water is an important resource that is becoming the cause of great concern all over the world. Write a report on any 2 water disputes in India.

2. Interview any 2 labourers. Understand why they migrated and prepare a report based on it. Record your interview so that it can be discussed in class. Refer to Pg 14, question 7 of your Economics Text Book.