



ARMY PUBLIC SCHOOL PATIALA (2021-2022)

HOLIDAYS HOME WORK ASSIGNMENT

CLASS: IX

SUBJECT: MATHEMATICS

- DO THE FOLLOWING QUESTIONS IN SEPARATE NOTEBOOK

1. Find the zeros of polynomial $p(x) = x^2 + 4x + 2$

2. Locate $\sqrt{20}$ on number line.

3. Check whether $1+2x$ is a factor of $x^3 + 5x$?

4. Draw the graph of the given linear equation: $3=2x + y$

5. Expand using suitable identity: $(2x+3y-z)^2$

6. If $\frac{5+2\sqrt{3}}{7+4\sqrt{3}} = a+b\sqrt{3}$, then find values of a and b .

7. In which quadrant or on which axis do each of the points $(-2,4)$, $(3,-1)$, $(-1,0)$, $(1,2)$, $(0,-4)$ and $(-3,-5)$ lie? Locate on Cartesian plane also.

8. If the polynomials $ax^3 + 4x^2 + 3x - 4$ and $x^3 - 4x + a$ leave the same remainder when divided by $(x-3)$, find the value of a .

9. The path of train A is given by the equation $3x+4y-12=0$ and the path of another train B is given by the equation $3x+y-9=0$. Represent these equations graphically on same graph.

10. If $x = \frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}$ and $y = \frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}+\sqrt{2}}$, find $x^2 + y^2$

11. Find the value of k if the line on $2x+y = k$ passes through the point $(3,5)$.

12. Find the remainder when polynomial $4x^3-12x^2+14x-3$ is divided by $2x-1$.

13. Write equation $3x+2y = 18$ in the form of $ax+by+c = 0$. Also find values of a,b,c . Are $(4,3)$ and $(1,2)$ solutions of this equation?

14. Draw the graph of equation $3x+5y=15$. At what points the graph of equation cut the x-axis and y-axis.

15. (i) Evaluate 105×107 using identity

(ii) Evaluate $(102)^3$ using identity.

16. Express the following as fraction (p/q form):

a) $15.\overline{712}$

b) $23.\overline{43}$

17. Simplify: $\frac{3\sqrt{2}-2\sqrt{3}}{3\sqrt{2}+2\sqrt{3}} + \frac{\sqrt{12}}{\sqrt{3}-\sqrt{2}}$

18. Find the value of a if,

$$\frac{6}{3\sqrt{2}-2\sqrt{3}} = 3\sqrt{2} - a\sqrt{3}$$

19. Simplify:

a) $(125)^{2/3} \div (125)^{4/3} \times (125)^{1/3}$

b) $\frac{1}{3} \times (\sqrt{5})^6 \times (36)^{3/2}$

20. Locate $\sqrt{6.7}$ on a number line

21. Simplify $(1^3 + 2^3 + 3^3)^{1/2}$

22. If $a = \frac{3+\sqrt{5}}{2}$, then find the value of $(a + \frac{1}{a})^2$

23. If $x = 7 + 4\sqrt{3}$, then whether $x^2 - (\frac{1}{x})^2$ is rational or irrational?

24. Find value of a if $(x + a)$ is factor of $x^3 + ax^2 - 2x + a + 4$

25. Factorise :

a) $x^3 - 10x^2 - 53x - 42$

b) $2y^3 - 5y^2 - 19y + 42$

26. Factorise:

a) $4x^2 + 25y^2 + 9z^2 - 20xy - 30yz + 12zx$

b) $9x^2 + 24xy + 16y^2$

27. Find value of m if $(2x-1)$ is factor of $8x^4 + 4x^3 - 16x^2 + 10x + m$

28. Plot the points P (-3, 2), Q (-7,-3), R (6,-3) and S (2, 2) on graph paper and name the figure formed.
29. Plot A (5, 3), B (-2, 3) and D (5,-4). Join them to form a square ABCD and find co-ordinates of C.
30. Plot the points A (-1, 2), B (3, 2), C (-1,-1) and D (3,-1). Identify the figure and find its perimeter.

SUBJECT: SCIENCE

Chemistry

INSTRUCTIONS: -

1. Do holidays homework in chemistry notebook only.
2. Complete NCERT text book INTEXT and BACK EXERCISE questions.
3. The work will be considered as the part of notebook assessment.

Q1:-Can a rubber band change its shape on stretching? Is it a solid?

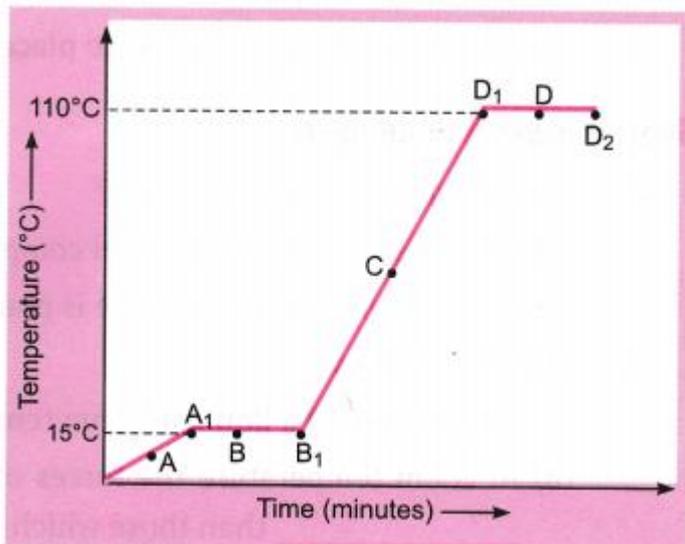
Q2:-Why steam at 100°C is better for heating purposes than water at 100°C ?

Q3:-Why do we see water droplets on the outer surface of a glass containing ice cold water?

Q4:-Can materials exist in all the three states?

Q5:-Kinetic energy of particles of water in three vessels A, B and C are E_A , E_B and E_C respectively and $E_A > E_B > E_C$. Arrange the temperatures, T_A , T_B and T_C of water in the three vessels in increasing order.

Q6:- The temperature-time graph given alongside shows the heating curve for pure wax.



From the graph answer the following:

- (a) What is the physical state of the substance at the points A, B, C and D?
- (b) What is the melting point of the substance?

- (c) What is its boiling point?
(d) Which portions of the graph indicates that change of state is taking place?
(e) Name the terms used for heat absorbed during change of states involved in above process.

Q7:-Water as ice has a cooling effect, whereas water as steam may cause severe burns. Explain these observations

PHYSICS

CHAPTER -8 (MOTION)

INSTRUCTIONS: -

4. Do holidays homework in same Physics notebook only.
 5. After every answer leave one line.
 6. Graphs should be drawn with pencil and scale on graph sheets only.
 7. Complete NCERT text book INTEXT and BACK EXERCISE questions.
 8. The work will be considered as the part of notebook assessment.
-
1. Explain why, the motion of a body which is moving with constant speed in a circular path is said to be accelerated.
 2. What is the difference between uniform linear motion and uniform circular motion ? Explain with examples.
 3. State an important characteristic of uniform circular motion. Name the force which brings about uniform circular motion.
 4. Find the initial velocity of a car which is stopped in 10 seconds by applying brakes. The retardation due to brakes is 2.5 m/s^2 . (ANS- 25 m/s)
 5. Describe the motion of a body which 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 s ? (ANS- The velocity of this body is increasing at a rate of '10 metres per second' every second ; 20 m)
 6. A motorcycle moving with a speed of 5 m/s is subjected to an acceleration of 0.2 m/s^2 . Calculate the speed of the motorcycle after 10 seconds, and the distance travelled in this time. (ANS- 27 m/s ; 60 m)
 7. A bus running at a speed of 18 km/h is stopped in 2.5 seconds by applying brakes. Calculate the retardation produced. (ANS - 2 m/s^2)
 8. A train starting from rest moves with a uniform acceleration of 0.2 m/s^2 for 5 minutes. Calculate the speed acquired and the distance travelled in this time. (ANS- 60 m/s ; 9 km)
 9. Name the two quantities, the slope of whose graph gives : (a) speed, and (b) acceleration . A cheetah starts from rest, and accelerates at 2 m/s^2 for 10 seconds. Calculate : (a) the final velocity (b) the distance travelled.
(ANS- (a) Distance and Time (b) Speed (or Velocity) and Time **B. (a) 20 m/s (b) 100 m)
 10. A train travelling at 20 m s^{-1} accelerates at 0.5 m s^{-2} for 30 s. How far will it travel in this time ? (ANS- 825 m)

11. A cyclist is travelling at 15 m s^{-1} . She applies brakes so that she does not collide with a wall 18 m away. What deceleration must she have? (ANS:- 6.25 m s^{-2})
12. Draw a velocity-time graph to show the following motion: A car accelerates uniformly from rest for 5 s ; then it travels at a steady velocity for 5 s.
13. The velocity-time graph for part of a train journey is a horizontal straight line. What does this tell you about (a) the train's velocity, and (b) about its acceleration?
14. Show by means of graphical method that : $v = u + at$ where the symbols have their usual meanings.
16. Derive the following equation of motion by the graphical method : $v^2 = u^2 + 2as$ where the symbols have their usual meanings.

BIOLOGY

CHAPTER-5 Fundamental unit of life

- Q1. Where are proteins synthesized inside the cell?
- Q2. Name the two cell organelles that contain their own DNA.
- Q3. What is a microscope?
- Q4. Why are the Golgi apparatus found in large numbers in the cells which secretes digestive enzymes?
- Q5. Why are lysosomes called 'suicidal bags' ?
- Q6. Which cell organelle is known as power house of the cell? And why?
- Q7. What is cell theory? Who formulated it?
- Q8. Give any three differences between cell wall and cell membrane.
- Q9. Which cell organelle is called as garbage disposal system of the cell?
- Q10. Give the main function of each of the following
- Plasma membrane
 - Ribosome
 - Mitochondria
 - Nucleus
 - Endoplasmic reticulum
- And do revise the chapter (THE FUNDAMENTAL UNIT OF LIFE)
 - Do NCERT question answers in the notebook.

SUBJECT: SOCIAL SCIENCE

HISTORY	DRAW POLITICAL SYMBOLS OF FRENCH REVOLUTION
GEOGRAPHY	MARK THE FOLLOWING ON POLITICAL MAP OF INDIA STANDARD MERIDIAN LATITUDE AND LONGITUDE EXTENT OF INDIA SOUTHERNMOST, NORTHERN MOST , EASTERN MOST AND WESTERN MOST POINTS OF INDIA
NOTE	DO YOUR HOLIDAY'S H.W IN SOCIAL SCIENCE NOTE BOOK
	LEARN CHAPTERS COVERED IN THE CLASS

SUBJECT: ENGLISH

1. Watch the following documentaries/movies (available on Youtube)
 - a) "Copy Shop" – by Virgil Widrich, 2001
 - b) "David Copperfield" – by Charles Dickens, 1969
 - c) "Alice in the Wonderland" – by Lewis Carroll, 1972 (d) "Lucy"- A science fiction by Luc Besson, 2014

Write down everything that comes to your mind after watching these movies.

2. Read 'The Times of India' newspaper (that is posted every day in your class WhatsApp groups) every day and write the meaning of any two difficult words you come across.
3. Read any five short stories by Mulk Raj Anand (available on internet – "Short Stories – Mulk Raj Anand – The Sitting Bee"). Once you understand the basic themes of his stories, write a story using your imagination touching the likewise issues. Record your video narrating the same story.
4. Discuss with your parents (especially your mother) the difficulties they faced when you were a toddler. Make a diary entry expressing your feelings about the same.

5. Write articles on the following topics (150-200 words) :

"Education is not the preparation for life, education is life itself"

"Cinema is the most beautiful fraud in the world"

6. Pdf's of unit 1 and 2 (Beehive) of work book have been shared with you. Whatever has been given in these two units that you have to do.

Note – Do your holidays' homework in Grammar and Writing Skills notebook.

SUBJECT: HINDI

(क) पत्र लेखन

1. अपने मित्र / सहेली को छुट्टियों में अपने पास बुलाने के लिए पत्र लिखिए।

(ख) अनुच्छेद लेखन

1. वन-महोत्सव

(ग) संवाद लेखन

1. मोबाइल फ़ोन की उपयोगिता को आधार बनाकर दो मित्रों के बीच होने वाली बातचीत को संवाद के रूप में लिखिए।

(घ) नारा लेखन

1. हिंदी भाषा के प्रचार-प्रसार के लिए 20-30 शब्दों में नारा लिखिए।

2. ' पर्यावरण की रक्षा ' विषय पर 20-30 शब्दों में नारा लिखिए।

(ङ) गतिविधि -

रहीम के पाँच दोहे गाकर ऑडियो या वीडियो बनाएँ।

ग्रीष्मावकाश गृहकार्य व्याकरण पुस्तिका में लिखिए।

नोट-लेख साफ़, सुंदर एवं स्पष्ट होना चाहिए।

SUBJECT: PUNJABI

(ੳ)ਲੇਖ

1 ਪੜ੍ਹਾਈ ਵਿਚ ਖੇਡਾਂ ਦੀ ਥਾਂ

2 ਪੁਸਤਕਾਂ ਦਾ ਮਹੱਤਵ

(ਅ) ਚਿੱਠੀ- ਪੱਤਰ ਰਚਨਾ

1 ਪੇਸਟ ਮਾਸਟਰ ਨੂੰ ਡਾਕੀਏ ਦੀ ਸ਼ਿਕਾਇਤ ਕਰਦੇ ਹੋਏ ਪੱਤਰ ਲਿਖੋ।

2 ਆਪਣੇ ਸਕੂਲ ਦੇ ਮੁੱਖ ਅਧਿਆਪਕ ਨੂੰ ਭਰਾ ਦੇ ਵਿਆਹ ਤੇ ਛੁੱਟੀ ਲੈਣ ਲਈ ਬੇਨਤੀ ਪੱਤਰ ਲਿਖੋ।

SUBJECT: IT

- Explore the impact of IT and ITeS in various areas in day to day life. Explain by making a presentation.
- Make a chart or presentation explaining ergonomics.
- Explain various types of keys on a keyboard.
- Explain Various parts of writer window.

Note: For question 3,4, half sheet of chart paper can be used or a file maintained.