

**PM SHRI KV RAJOURI**  
**SUBJECT : MATHEMATICS**  
**SUMMER VACATION HOMEWORK**

**CLASS IX**

**Textbook : Ganit Manjari (Class IX)**

Topics : Coordinate Geometry | Polynomials | Creative Mathematics

*Note : To be completed in a separate Holiday Homework Notebook.*

**Q1.** Plot the points P(3, -4), Q(-2, 5), R(0, -3), S(-4, 0) on a Cartesian plane. State the quadrant or axis for each.

**Q2.** In which quadrant do the following points lie? (i) (-5, 7) (ii) (3, -2) (iii) (-1, -8) (iv) (6, 4)

**Q3.** PQRS is a square with P(1, 3) and Q(4, 3). Find the coordinates of R and S if the square lies above PQ.

**Q5.** The x-coordinate of a point is -3 and its y-coordinate is the same as its x-coordinate. Name the point and its quadrant.

**Q6.** A triangle has vertices A(2, 4), B(6, 4) and C(4, 8). Plot on graph paper and find the type of triangle by examining its sides.

**Q7.** On a graph, plot the mirror image of triangle P(1,2), Q(3,5), R(5,1) about the y-axis. Write the coordinates of the reflected triangle.

**Q8. Find the Rational Numbers:** Find five rational numbers between  $\frac{3}{5}$  and  $\frac{4}{5}$

**Q9. Decimal Expansion:** Express 0.235353535... in the form of  $\frac{p}{q}$ , where p and q are integers and q not equals to zero.

Q 10. Classification: State whether the following numbers are rational or irrational: a) 0.3796  
b) 7.0478478478478..... c) 1.01001000100001000001.....

Q11. Find the value of a and b in following :  $(4+3\sqrt{5})/(4-3\sqrt{5}) = a + b\sqrt{5}$

Q12. Locate  $\sqrt{3}$  on the number line

**Creative Mathematics**

**Q13.** Design a 'Coordinate Art': Plot at least 10 points and join them in order to form a recognisable shape (house, boat, star etc). List all coordinates and their quadrants.

**Q14.** Treasure Map Problem: A treasure is located at the midpoint of  $(-6, 8)$  and  $(4, -2)$ . Find its coordinates. A second clue says move 3 units right and 5 units up. Where is the final location?

### Subject: Social Science

❖ Theme: “Learn, Create & Explore”

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## Chapters Covered:

1. Climate 
2. Government 
3. Elections 

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## MAIN PROJECT (Compulsory)

### “Create Your Own India – A Creative Portfolio”

Prepare a **scrapbook / file / mini-project folder** that includes all three chapters in an integrated and creative way.

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## 1. CLIMATE (Make it Visual!)

### Create a “Climate Diary of India”

- Draw India map and divide into climatic regions
- Add:
  - Summer (☀), Winter (❄), Monsoon (☁)
- Write how climate affects:
  - Food 🍲
  - Clothes 👕
  - Lifestyle

### **Creative Twist:**

Make a **Weather Wheel (rotating circle)** showing seasons

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## **2. GOVERNMENT (Make it Interactive!)**

 Create a “**Mini Constitution Booklet**”

- Define government
- Types of government
- Functions of government

### **Creative Twist:**

- Make a **3-layer flap chart**:
  - Open 1 → Legislature
  - Open 2 → Executive
  - Open 3 → Judiciary

 Add a small section:

“**If I were a leader...**” (write your ideas)

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## **3. ELECTIONS (Learn by Doing!)**

 Create a “**Mock Election Kit**”

Include:

- Party names (create your own)
- Election symbols 
- Ballot paper
- Voter ID sample

### **Creative Twist:**

- Read about the west Bengal election and write results like a real report
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## 4. HERITAGE ACTIVITY (Most Creative Part!)



### “Ancient Civilization Art Corner”



Make **Seals of:**

- Harappan Civilization
- Any one: Egyptian / Mesopotamian Civilization



**Creative Ideas:**

- Use clay / atta
- Add symbols like ancient script



Add 3–4 lines:

- What do these seals tell us?



### SUBMISSION

Submit on the **first working day after holidays.**

## Summer Vacation Homework – (Visual Art)

- Draw **2–3 still life compositions** (bottle, fruits, cup, etc.)
- Focus on:
  - Light & shadow
  - Proportion
  - Neat pencil shading

Create **2 full-page compositions:**

- Nature (sunset, mountains, river)
- Human activity (market, village life, city scene)

Make **2 creative posters** with strong slogans:

- Save Environment
- Water Conservation

- Anti-Plastic
- Social Awareness (health, education, etc.)

Create **1 detailed artwork** in any style:

- Madhubani
  - Warli
  - Gond
  - Pattachitra
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- Make **2 design sheets**:
    - Mandala (radial symmetry)
    - Geometric / repeat patterns
  - Use proper color harmony

## **ENGLISH**

### Dialogue Writing

Create a new conversation between two characters of a chapter

OR imagine:

“What happens after the story ends?”

☐ Write in proper dialogue format

2 .Prepare a Portfolio about yourself (Indications):-

Introduction

Strengths

Weaknesses

Skills Developed

Goals

Conclusion

### 3. Newspaper Scrapbook Project

Paste 10-12 newspaper articles on different topics.

For each article, write:

Heading

3–4 line summary

3–5 new words with meanings

2–3 line opinion

Maintain a neat and creative presentation or file.

Add a short reflection (4–5 lines) at the end.

### 4. Letter Exchange Project\*

- Write a formal letter to the Municipal Commissioner of Jammu about “One thing I want improved in my area this summer”. 120 words. Use the correct format.

- Write an informal letter to a friend in another city describing “How Jammu feels in summer”. 120 words. Compare both styles.

## **MUSIC**

English:

Select any one Raag:

Bhopali

Yaman

Bhairav

Learn one movie song based on the selected Raag.

Write names of at least 5 songs based on each Raag in your notebook.

Mention which song you liked the most.

Prepare and perform that song.

हिंदी:

किसी एक राग का चयन करें:

भोपाली

यमन

भैरव

चुने हुए राग पर आधारित एक फिल्मी गीत सीखें।

प्रत्येक राग पर आधारित कम से कम 5 गीतों के नाम नोटबुक में लिखें।

जो गीत आपको सबसे अच्छा लगे उसका नाम लिखें।

उस गीत की प्रस्तुति तैयार करें।

### विषय-हिंदी

1. बीस दिन की छुट्टियों का विवरण देते हुए एक डायरी तैयार करें जिसमें आपकी दिनचर्या का विवरण शामिल हों।

2. "बिना मोबाइल के एक दिन " पर लघु लेख लिखिए ।

3. एक स्व निर्मित प्रेरणादायक कहानी उपयुक्त शीर्षक के साथ तैयार करें। कहानी लगभग 500 शब्दों की होनी चाहिए।

4. तत्सम एवं तदभव शब्दों की सूची तैयार करें।(20 शब्द)

5. विदेशी शब्दों की सूची तैयार करें जिसमें अंग्रेजी, चीनी, जापनी, उर्दू एवं फारसी भाषाएं शामिल हों हर भाषा से दस-दस शब्द होने चाहिए।
6. पाठ्यपुस्तक के आधार पर हीरा और मोती का चरित्र चित्रण कीजिए।
7. यदि आप लेखक होते तो” दो बैलों की कथा “का अंत कैसे करते आपके अनुसार इस कहानी का अंत कैसा होना चाहिए।
8. समास एवं उनके प्रकार लिखिए।

### **Chemistry**

- Q1. What is separation of mixtures? Which separation method is most useful in daily life? Give reason.
- Q2. Explain the difference between true solution, colloid, and suspension with diagrams.
- Q3.i) Why do chemical reactions change the properties of substances?
- ii) Observe what happens when sugar dissolves in water. Can it be separated by filtration? Give reason.
- Q4.(i) Why does oil float on water?
- (ii) Prepare a solution using 20 g salt in 80 g water. Calculate its mass percentage.
- Q5.(i) What happens when chalk powder is added to water?
- (ii) Add sugar to cold water and hot water separately. In which does sugar dissolve faster? Give reason.
- Q6. A beaker is taken. Water is added to it. Sand and salt are added. The mixture is stirred and left undisturbed.

Answer the following:

- I. What happens when the mixture is stirred?
- II. Which substance dissolves in water?
- III. What happens when the mixture is left undisturbed?
- IV. What type of mixture is formed?

### **BIOLOGY**

## Class 9 Biology – Holiday Homework Questions

### Very Short Answer Questions

1. Who discovered the cell?
2. Which instrument is used to observe cells?
3. What is the basic structural and functional unit of life?
4. Name the outer covering of a plant cell.
5. Which cell organelle is known as the “powerhouse of the cell”?
6. Which organelle contains chlorophyll?
7. Name the jelly-like substance present inside the cell.
8. Which part of the cell controls all activities of the cell?
9. What is the function of the cell membrane?
10. Differentiate between prokaryotic and eukaryotic cells (one point).

### Short Answer Questions

11. Draw and label a plant cell.
12. Draw and label an animal cell.
13. Write any three functions of the plasma membrane.
14. Explain the structure and function of the nucleus.
15. Why are mitochondria called the powerhouse of the cell?
16. Differentiate between plant cell and animal cell (any four points).
17. What is osmosis? Explain with an example.
18. What happens when a cell is placed in:
  - Hypertonic solution
  - Hypotonic solution
  - Isotonic solution

### Long Answer Questions

19. Explain the structure and functions of the following organelles:
    - Endoplasmic Reticulum
    - Golgi Apparatus
    - Lysosomes
    - Vacuoles
  20. Describe the process of diffusion and osmosis with suitable examples.
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21. Explain the similarities and differences between prokaryotic and eukaryotic cells.

**Case-Based Questions**

A student observed a cell under the microscope. The cell had a cell wall, chloroplast, and a large vacuole.

- Identify the type of cell.
- Name two features that helped you identify it.
- Write one function of chloroplast.

Ravi kept raisins in water overnight. The raisins swelled after some time.

- Which process is responsible for this change?
- Explain the process.
- What will happen if raisins are placed in concentrated salt solution?

\* Write any one activity from cell in project file.

\* Make a chart from any topic from chapter-CELL.

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# Physics

Dear Students,

This holiday homework is designed to make learning Physics fun, practical, and creative. You will explore real-life situations, perform simple activities, and express your understanding in innovative ways. Complete all tasks neatly in a separate file.

## Topics Covered:

- Rest and Motion
- Frame of Reference
- Distance and Displacement
- Scalars and Vectors

## General Instructions:

- Be creative and use colors, diagrams, and pictures.
- Try to relate concepts with real-life examples.
- Maintain neatness and proper labeling.
- Complete the work over 15 days (2–3 activities every few days).

## Creative Activities:

1. Motion Diary: Observe and record different types of motion you see daily (e.g., vehicles, fan, people walking). Classify them as uniform or non-uniform motion.
2. Rest vs Motion Poster: Create a colorful poster explaining the difference between rest and motion with examples.
3. Frame of Reference Activity: Sit in a moving vehicle and observe surroundings. Write a short paragraph explaining how motion changes with frame of reference.
4. Distance vs Displacement Map: Draw a map from your home to school. Show distance and displacement using arrows.
5. Story Writing: Write a short story involving motion concepts (e.g., a journey, race, or travel experience).
6. Scalar vs Vector Chart: Prepare a chart differentiating scalars and vectors with examples and diagrams.
7. DIY Experiment: Walk in a straight line and then return. Measure distance and displacement and record observations.
8. Quiz Creation: Prepare 10 MCQs based on the given topics.
9. Concept Comic: Create a comic strip explaining any one concept in a fun way.
10. Real-life Applications: Write 5 real-life uses of vectors and motion.

### **Subject: AI**

Do read and understand chapter 2- self management skills of Part A and make proper notes of the chapter.