

Holiday Homework

Class 9

➤ **ENGLISH:**
Holiday Homework

❖ **Prepare an AIP comparing and contrasting the Dress and Dance forms of Arunachal Pradesh and Meghalaya.**

The project must be submitted in a cardboard file covered with a red sheet with atleast 15 sheets including

- **Cover page**
- **Index**
- **Acknowledgment**
- **Certificate**
- **Bibliography**

Draw and paste pictures supporting the content.

It should be beautifully decorated and neatly presented with your details on the cover page.

➤ **HINDI: HOLIDAY HOMEWORK**

1 कबीर को के महान व्यक्तित्व और कृतित्व को निबंधात्मक शैली में विभिन्न दोहो का उदाहरण देते हुए लिखें।
यथासंभव उनका एक आकर्षक चित्र भी बनाएं।

- जीवन परिचय
- रचनाएं

- साहित्यिक विशेषताएं
- भाषा शैली

2 अनुच्छेद लेखन

विषय -1 जो समय नष्ट करता है, समय उसको नष्ट करता है। (विचारात्मक निबंध)

2 मोबाइल:फोन सुविधा या असुविधा

(संचार से संबंधित)

3 पारंपरिक कृषि और आधुनिक कृषि के बीच का अंतर स्पष्ट करते हुए, कृषि क्षेत्र में होने वाले नए प्रयोग से कृषक वर्ग कितना लाभान्वित है, उन लाभों को बताते हुए, यथासंभव किन्हीं दो आधुनिक उपकरणों के चित्र बनाइए।

4 कोई एक कविता कहानी लेख तुकबंदी आदि लिखिए।

अथवा

किसी एक समसामयिक विषय पर पोस्टर बनाइए।

नोट- *रचना स्वरचित हो।

*रचना लिखते समय भाषा और वर्तनी की

शुद्धता का ध्यान रखें।

*रचना अच्छी होने पर उसका चयन स्कूल

मैगज़ीन के लिए किया जाएगा।

* उपर्युक्त रचनात्मक क्रियाकलाप के लिए एक आकर्षक हस्त निर्मित फाइल (hand made file) बनाएं। जिसमें रंगीन पेपर पर विषय की अभिव्यक्ति चित्रात्मक रूप से करें। चित्रों को पृष्ठ के बाएं ओर (left side) चिपकाएं।

MATHS: MATHEMATICS WORKSHEET

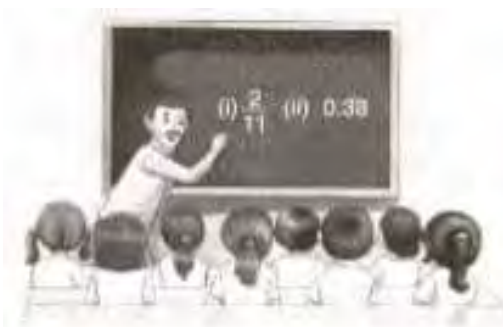
1. CLASS IX 2025-26

2. Expand: $(3x + 5y)^3$
3. Factorize: i) $x^2 + 7x + 10$ ii) $x^3 - 27$ iii) $2x^3 + 3x^2 - 2x - 3$ vi) $x^4 - 16$
4. Using identity, simplify: $(a + b)^2 - (a - b)^2$
5. Find the remainder when $x^3 + 2x^2 - 5x + 3$ is divided by $x - 1$.
6. Use algebraic identity to expand: $(2x - 3)^2$
7. Show that $x = 2$ is a zero of the polynomial $x^3 - 3x^2 - 4x + 24$, and find other factors.
8. Factorize: $x^2 - 5x + 6$
9. If $f(x) = x^3 + 4x^2 - x - 4$, use Remainder Theorem to find $f(-1)$

10. Use Factor Theorem to prove that $x - 3$ is a factor of $x^3 - 6x^2 + 11x - 6$, and factorize the polynomial completely.
11. Expand: $(2x - 5)^3$
12. Factor: $x^3 + 3x^2 - x - 3$
13. Expand: $(a + b)^3 + (a - b)^3$
14. Find the value of k such that $x - 2$ is a factor of $x^3 + kx^2 - x - 2k$
15. Factorize completely: $x^4 - 5x^2 + 4$
16. If $x^3 - 7x + 6$ is divisible by $x - 1$, find all the zeros.
17. Prove using identity: $(a + b)^3 - (a - b)^3 = 2ab(a + b + a - b)$
18. Expand using identity: $(3x + 2y - z)^2$
19. Given $f(x) = x^3 + ax^2 + bx + 6$, and that $f(1) = 0$ and $f(2) = 0$, find a and b .
20. Use the Factor Theorem to factorize: $x^3 - 4x^2 - 7x + 10$
21. Prove: $(a + b + c)^2 - (a - b - c)^2 = 4(bc + ab + ac)$
22. Factorize: $x^4 + 5x^2 + 4$
23. Expand : $(\frac{1}{2}x + \frac{3}{5}y + z)^2$
24. Find the remainder when $2x^3 - 3x^2 + 4x - 5$ is divided by $x + 1$
25. If $x = 1$ and $x = -1$ are roots of the polynomial $x^3 + px + q$, find p and q .
26. Factorize each of the following polynomials:
 - i) $x^3 + 13x^2 + 31x - 45$ given that $x + 9$ is a factor.
 - ii) $4x^3 + 20x^2 + 33x + 18$ given that $2x + 3$ is a factor.
27. Factorise:
 - a) $25x^2 + 16y^2 + 4z^2 - 40xy + 16yz - 20xz$.
 - b) $2\sqrt{2}a^3 + 16\sqrt{2}b^3 + c^3 - 12abc$.
28. If $a + b + c = 5$ and $ab + bc + ca = 10$, then prove that $a^3 + b^3 + c^3 - 3abc = -25$
29. If $2x + 3y = 12$ and $xy = 6$, find the value of $8x^3 + 27y^3$.
30. 18. Let R_1 & R_2 are the remainders when the polynomials $f(x) = 4x^3 + 3x^2 - 12ax - 5$ and $g(x) = 2x^3 + ax^2 - 6x - 2$ are divided by $(x-1)$ and $(x-2)$ respectively. If $3R_1 + R_2 - 28 = 0$, find the value of a .
31. Evaluate using identities:
 - I. $7.83 \times 7.83 - 1.17 \times 1.17$
 - II. $293^2 - 107^2$
 - III. 95×96
32. Find the three rational numbers between:
 - (i) -1 and -2
 - (ii) 0.1 and 0.11
 - ii) $\frac{2}{5}$ and $\frac{5}{6}$

33. To judge the preparation of student's class IX on topic " Number System" Mathematics teachers write two numbers on black board (as shown in figure), and asks some questions about the numbers, which are following, then answer the question:

- i. Write the decimal form of $\frac{2}{11}$
- ii. write the rational form of $0.\overline{38}$
Choose the correct option:
- iii. Between two rational numbers there is I) no rational number b) exactly one rational number c) infinitely many rational numbers d) only rational numbers and no irrational numbers
- iv. The product of any two irrational numbers is a) always an irrational number b) always a rational number c) always an integer d) sometimes rational, sometimes irrational .



NOTE:- Apart from the worksheet given above exercises and examples of chapter Polynomial and Number System must be done from R S Agarwal in practice Register.

➤ **SOCIAL SCIENCE:**

SOCIAL SCIENCE PROJECT

➤ **DISASTER MANAGEMENT**

Natural Disasters

- Earthquake _ Roll no1 to 10
- Cyclones_ Roll no 11 to 20
- Forest fires_ Roll no 21to 30
- Landslide/ Avalanche_ Roll no 31to 40
- Floods_ 41 onwards

EARTHQUAKE

Page 2. ACKNOWLEDGEMENT

Page 3. CONTENT

Page 4. What is DISASTER

Types of DISASTER

Types of Natural Disasters

Page 5. To 10. SAMPLE 📌

Earthquake (Define)

Causes

Effects

Prevention (before like Earthquake resistant structures)

Do's and Don'ts (during)

Precautions after

Case study of Nepal Earthquake

Page 11. Conclusion

Page 12 Bibliography

NOTE-

- Use interleaved sheets(one side line)
- Don't use colourful sheets
- Cover page can be decorated or painted depicting glimpse of Natural Disasters
- Name ,class ,Roll no must be written on the cover page itself
- No use of stickers and glitters
- No extra drawing apart from the topic
- CREATIVITY COUNTS(depicting information by various forms like use of graphs,maps,colourful pics,diagrams etc
- DO'S AND DO'NTS must be in self explanatory diagrams

HEADINGS WILL BE Almost THE SAME ONLY CONTENT WILL BE CHANGED according to topic

SCIENCE:HOLIDAY HOMEWORK

Note-Instructions for Holiday Homework Submission:

1. Complete your Holiday Homework neatly on file sheets.
2. Enclose the work in a cardboard file for protection and presentation.
3. An acknowledgement page must be included at the beginning of the file.
4. Learn and revise all the work that is taught and done in the class.
5. Practical work should be done in a combined Practical notebook for physics, chemistry and biology for mentioned experiment numbers in Holiday Homework.

Class 9 Science Holiday Worksheet

Name: _____

Class: IX Sec: _____

Date: _____

Section A: Multiple Choice Questions

(Q1–Q10)

1. Which of the following is a vector quantity?
 - a) Speed
 - b) Distance
 - c) Displacement
 - d) Mass
2. The SI unit of speed is:
 - a) km/h
 - b) m/s
 - c) cm/s
 - d) m/min
3. A body covers equal distances in equal intervals of time. It is in:
 - a) Accelerated motion
 - b) Non-uniform motion
 - c) Rest
 - d) Uniform motion
4. What does a horizontal line on a distance-time graph indicate?
 - a) Acceleration
 - b) Retardation

- c) Rest
 - d) Constant speed
5. Acceleration is defined as:
- a) Distance covered in unit time
 - b) Change in velocity per unit time
 - c) Rate of change of displacement
 - d) Product of mass and velocity
6. Which organelle is known as the "brain of the cell"?
- a) Ribosome
 - b) Nucleus
 - c) Mitochondria
 - d) Lysosome
7. Particles of matter are:
- a) Stationary
 - b) Continuous
 - c) In motion
 - d) Fixed
8. Temperature of 25°C is equal to:
- a) 273 K
 - b) 298 K
 - c) 250 K
 - d) 300 K
9. Which of the following has a cell wall?
- a) Animal cell
 - b) Plant cell
 - c) Red blood cell
 - d) None of these
10. Which of the following is an example of a chemical change?
- a) Melting of ice
 - b) Boiling of water
 - c) Dissolving salt
 - d) Rusting of iron

Section B: Very Short Answers

(Q11–20)

- 11. Define distance and displacement with one example.
- 12. Differentiate between speed and velocity (2 points).
- 13. What is average speed? Write its formula.
- 14. What is the SI unit of acceleration?
- 15. With the help of a labelled diagram define sublimation.
- 16. Convert 0°C , 100°C , and 273°C into Kelvin.
- 17. Define cell. Who discovered it?
- 18. Mention any two features of prokaryotic cells.
- 19. Name the organelle responsible for energy production.
- 20. Give two differences between solids and gases.

Section C: Numericals

(Q21–26)

- 21. A car travels 60 km in 2 hours and then 40 km in 1 hour. Calculate average speed.
- 22. An object increases its velocity from 5 m/s to 25 m/s in 4 seconds. Find acceleration.

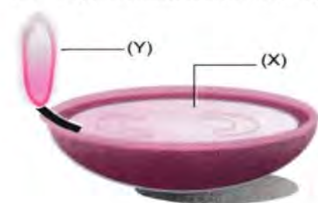
23. A vehicle travels 20 m in 4 s and then 40 m in 2 s. Find average speed.
24. A train starts from rest and attains 36 km/h in 10 s. Calculate its acceleration.
25. A ball moves with a speed of 15 m/s for 10 seconds. What distance does it cover?
26. A vehicle accelerates from 10 m/s to 20 m/s in 5 s. Find the acceleration and the distance covered during this time.

Section D: Diagram Based

(Q27–30)

27. Draw and label a plant cell and an animal cell.
28. Design an experiment to show that ammonium chloride undergoes sublimation.
29. Explain interconversion of three states of matter with the help of flow chart. Name the process of each interconversion.
- 30.

The diagram below shows burning of an oil lamp.



Draw the arrangement of particles of position 'X' and 'Y' when the lamp is burning.

Section E: Competency-Based

(Q31–45)

31. Riya walks 2 km north, then 2 km east in 30 minutes. Find the total distance, displacement, and average speed.
32. Aman and Rani both travel 60 km. Aman takes 1 hour and Rani takes 1.5 hours. Who has greater speed?
33. A student mixes salt in water and observes no increase in volume. What conclusion can be drawn about matter?
34. Rahul heats water in a kettle and observes vapor formation. Explain the energy change and state of matter.
35. A cell is observed under microscope showing a cell wall and chloroplasts. What type of cell is this? Justify your answer.
- 36.. A slice of raw potato is placed in concentrated salt water. After 20 minutes, it becomes shrunken and limp.
- Q: Explain what has happened to the potato cells and identify the type of solution involved.
37. A student puts raisins in plain water overnight. The next day, they appear swollen.
- Q: Which process caused this change? What type of solution was the water compared to the raisin's cells?
38. A plant cell is placed in a sugar solution and begins to shrink away from its cell wall.
- Q: Name the process and explain the cause behind this cellular behavior.
- 39.. A red blood cell is placed in distilled water. After some time, the cell bursts.
- Q: Explain why this happens using the concept of osmosis and solution type.

40. A lab technician places animal cells in three beakers containing different solutions:

Beaker A (distilled water),

Beaker B (0.9% saline),

Beaker C (concentrated salt solution).

Q: Predict and explain what will happen to the cells in each beaker.

41. A wilted plant is watered and becomes firm again after some time.

Q: What cellular process is responsible for this change? How does the water affect it?

Q: Explain the role of evaporation and air movement in this process.

43. Water kept in an earthen pot feels cooler than in a metal pot.

Q: Explain the scientific principle behind this observation using the concept of latent heat and evaporation.

44. When sweat evaporates from our skin, we feel cool.

Q: Why does this happen? Explain in terms of energy transfer.

45. During boiling, water temperature remains constant even though heat is continuously supplied.

Q: What is this phenomenon called and why does the temperature not rise?

CLASS -9

Note-1. Write the given Experiments in your Lab Manual.

2. Only 1 Notebook has to be made for Physics, Chemistry and Biology.

Experiment number 1 & 2 under the following Headings-

Aim-

Apparatus required-

Observation table

Result-

Precautions -(any two points)

Experiment number 4 -

Headings - Aim, Material Required, Observation, Diagram, Result and Precautions (any two).

Experiment number 8 & 9

Headings - Aim, Apparatus Required, Theory, Observation Table, Calculation, Result and Precautions (any two).

Artificial Intelligence

Assignment -1:

Output Based Questions (Do in notebook):

a) a = 10

b = 3

print(a // b)

print(a / b)

print(a % b)

print(a > b)

print(a < b)

b) x = 8

if x % 2 == 0:

print("Even")

else:

print("Odd")

c) a = 9

b = 2

print("Addition:", a + b)

print("Power:", a ** b)

print("Floor Division:", a // b)

d) x = 8

if x % 2 == 0:

print("Even")

else:

print("Odd")

e) for i in range(1, 6):

print(i * i, end=" ")

f) x = 1

while x < 5:

print(x, end=" ")

x += 1

g) x = 15

y = 10

print(x > y)

print(x == y)

print(x != y)

Assignment -2:

Error Based Questions(Do in your notebook):

a) 1st_number = 5

```
second_number = 10
```

```
print(1st_number + second_number)
```

b) a = 10

```
b = 5
```

```
c = a + ab
```

```
print(c)
```

c) x = 7

```
y = 3
```

```
print("The result is: " + x - y)
```

d) age = 16

```
if age > 13 and < 18:
```

```
    print("Teenager")
```

e) for i in 1 to 5:

```
    print(i)
```

f) while x < 5

```
    print(x)
```

```
    x = x + 1
```

Assignment -3:

Maintain a Lab manual and write python programs given below:

1. Write a menu-driven program to perform the following operations:

- **Addition**
- **Subtraction**
- **Multiplication**
- **Division**
- **exit**

Let the user choose the operation and enter two numbers

2. Write a menu-driven program to calculate area of:

- **Circle**
- **Rectangle**
- **Triangle**
- **Square**
- **exit**

Use appropriate formulas based on user input.

3. Write a menu-driven program to create a Temperature Converter

- **Convert Celsius to Fahrenheit**
- **Convert Fahrenheit to Celsius**
- **Exit**

4. Write a menu-driven program to create a Basic Banking System

Menu options:

- **Deposit money**
- **Withdraw money**
- **Check balance**
- **Exit**

Assume initial balance is 0.

5. Write a menu-driven program to create a Unit Converter

Menu options:

- **Convert kilometers to miles**
- **Convert kilograms to pounds**
- **Convert inches to centimeters**
- **Exit**

6. Write a menu-driven program to create a Marks Management System

Menu-driven options:

- **Enter marks for 5 subjects**
- **Calculate total marks**
- **Calculate average**
- **Find grade (A/B/C/Fail based on average)**
- **Exit**

7. Write a menu-driven program to create Number Operations 1

Menu-driven options:

- **Check whether a number is even or odd**
- **Check whether a number is positive or negative**
- **exit**

8. Write a menu-driven program to calculate simple interest and compound interest

Menu-driven options

- **Calculate Simple interest**
- **Calculate Compound Interest**
- **Exit**

9. Write a menu-driven program to create a Quiz Program

Menu-driven quiz:

- **Start quiz (3–5 simple questions)**
- **View score**
- **Exit**

10. Write a menu-driven program to create a Grade Calculator for Multiple Students

Menu options:

- **Enter marks for a student**
- **Calculate and display grade**
- **exit**