SUMMER VACATION HOME WORK – 2026-27

CLASS - X

Hindi -

	➢ अनुक्रमाकं (1–9) अलंकार की परिभाषा, भेद, (शब्दालंकार, अर्थालंकार) एवं अर्थालकार को परिभाषित कर प्रत्येक के 10–10 उदाहरण वाक्य, वाचक शब्दों के साथ लिखें। कार्य रचनात्मकता के साथ पूर्ण करें। ➢ अनुक्रमांक (10–18) वाक्य की परिभाषा, भेद (अर्थ व रचना के आधार पर) भेदों की परिभाषा एवं प्रत्येक भेद के 10–10 उदाहरण लिखकर वाक्य परिवर्तित भी करें। वाक्य परिवर्तन के लिए 5–5 अलग वाक्य चुनें। वाक्य परिवर्तन – सरल से संयुक्त / मिश्र सयुक्त से सरल / मिश्र मिश्र से संयुक्त / सरल कार्य में रचनात्मकता के साथ पूर्ण करें।

English –

23-06-2026	**Write a letter to the editor on any one issue:** Plastic Pollution Road Safety Water Conservation Examination Stress
24-06-2026	**Read any novel, biography, or storybook of your choice and prepare a review including:** Title and Author Main Characters Summary Favourite Scene Lessons Learnt Rating (out of 5) Word Limit: 250–300 words
25-06-2026	**Interview an Elder** Interview a grandparent, parent, teacher, or neighbour. Ask the following questions: What was school life like during your childhood? What was your favourite subject? What advice would you give to today's students? What changes have you noticed in education? Write a report of 150–200 words based on the interview.
27-06-2026	**Literature Activity** Character Diary Choose any one character from your English textbook. Write a diary entry (150–200 words) from the character's point of view describing: A memorable incident Feelings and emotions
29-06-2026	**Creative Writing** "A Letter to My Future Self"

	Imagine yourself ten years from now. Write an informal letter (150–200 words) to your future self describing: Your present dreams and ambitions Challenges you wish to overcome The kind of person you hope to become
30-06-2026	**Poetry Activity** Learn and write any poem from your textbook. Illustrate the poem creatively. Also write: The central idea of the poem The poet's message Your favourite lines and their meaning

MATHEMATICS

Instructions:

- **Choose the correct option in question 1 and 2.**
- **Question 3 to 5 are short answer type questions with reasoning.**
- **Question 6 to 8 are short answer questions.**
- **Question 9 and 10 are long answer questions.**

CHAPTER - 1 REAL NUMBERS

1. $n^2 - 1$ is divisible by 8, if n is
   a. An integer
   b. A natural number
   c. An odd integer
   d. An even integer
2. If two positive integers p and q can be expressed as $p = ab^2$ and $q = a^3b; a, b$ being prime numbers, then $LCM(p, q)$ is
   a. ab
   b. a^2b^2
   c. a^3b^2
   d. a^3b^3
3. Write whether every positive integer can be of the form $4q + 2$, where q is an integer. Justify your answer.
4. The numbers 525 and 3000 are both divisible only by 3,5,15,25 and 75. What is the HCF(525,3000)? Justify your answer.
5. Without actually performing the long division, find if $\frac{987}{1000}$ will have terminating or non-terminating(repeating) decimal expansion. Give reason for your answer.
6. Show that the square of an odd positive integer is of the form $8m + 1$, for some whole number m.
7. Prove that $\sqrt{p} + \sqrt{q}$ is irrational, where p, q are primes.
8. On a morning walk, three persons step off together and their respective steps measure 40 cm, 42cm and 45 cm respectively. What is the minimum distance each should walk so that each can cover the same distance in complete steps?
9. For any positive integer n, prove that $n^3 - n$ is divisible by 6.

10. Prove that one and only one out of $n, n+2$ and $n+4$ is divisible by 3, where n is any positive integer.

CHAPTER-2 POLYNOMIALS

1. If one of the zeroes of the cubic polynomial x^3+ax^2+bx+c is -1, then the product of the other two zeroes is
   a. $b-a+1$ c. $a-b+1$
   b. $b-a-1$ d. $a-b-1$
2. If one of the zeroes of a quadratic polynomial of the formx^2+ax+b is negative of the other, then it
   a. Has no linear term and the constant term is negative.
   b. Has no linear term and the constant term is positive.
   c. Can have a linear term but the constant term is negative.
   d. Can have a linear term but the constant term is positive.
3. If on division of a polynomial $p(x)$ by a polynomial $g(x)$, the quotient is zero, what is the relation between the degrees of $p(x)$ and $g(x)$?
4. Can x^2-1 be the quotient on division of x^6+2x^3+x-1 by a polynomial in x of degree 5?
5. What will be the quotient and remainder be on division of ax^2+bx+c by $px^3+qx^2+rx+s, p\neq 0$?
6. Find the zeros of $2s^2-\left(1+2\sqrt{2}\right)s+\sqrt{2}$ by factorisation method and verify the relations between the zeroes and the coefficients of the polynomials.
7. Find the zeros of t^3-2t^2-15t by factorisation method and verify the relations between the zeroes and the coefficients of the polynomials.
8. Find the zeros $x^2+\frac{1}{6}x-2,$ and verify the relations between the zeroes and the coefficients of the polynomials.
9. For which values of a and b, are the zeroes of $q(x)=x^3+2x^2+a$ also the zeroes of the polynomial $p(x)=x^5-x^4-4x^3+3x^2+b$? Which zeroes of $p(x)$ are not the zeroes of $q(x)$?
10. Given that $x-\sqrt{5}$ is a factor of the cubic polynomial $x^3-3\sqrt{5}x^2+13x-3\sqrt{5}$, find all the zeroes of the polynomial.

CHAPTER-3 PAIR OF LINEAR EQUATIONS IN TWO VARIABLES

1. The pair of equations $15x-15y=8$ and $3x-9y=\frac{24}{5}$ has
   a. One solution c. Infinitely many solutions
   b. Two solutions d. No solution

2. The father's age is six times his son's age. Four years hence, the age of the father will be four times his son's age. The present ages, in years, of the son and the father are, respectively
   a. 4 and 24
   b. 5 and 30
   c. 6 and 36
   d. 3 and 24
3. Do the equations $4x + 3y - 1 = 5$ and $12x + 9y = 15$ represent a pair of coincident lines? Justify your answer.
4. For the pair of equation $\lambda x + 3y = -1$ and $2x + 6y = 14$ to have infinitely many solutions, the value of λ should be 1. The given statement is true or false? Give reasons.
5. The line represented by $y = 6$ is parallel to $y - axis$. Justify whether the statement is true or false.
6. Solve the pair of linear equations $21x + 47y = 110\ and\ 47x + 21y = 162$.
7. For which value of λ, the pair of linear equations $\lambda x + y = \lambda^2$ and $x + \lambda y = 1$ have
   a. No solution?
   b. Infinitely many solutions?
   c. A unique solution?
8. Draw the graph of the pair of equations $2x + y = 4$ and $2x - y = 4$. Write the vertices of the triangle formed by these lines and the y −axis. Also find the area of this triangle.
9. It can take 12 hours to fill a swimming pool using two pipes. If the pipe of larger diameter is used for 4 hours and the pipe of smaller diameter for 9 hours, only half the pool can be filled. How long would it take for each pipe to fill the pool separately?
10. Vijay had some bananas, and he divided them into two lots A and B. He sold the first lot at the rate of Rs.3 for 3 bananas and the second lot at the rate of Re. 1/banana, and got a total of Rs. 400. If he sold the first lot at the rate of Re. 1/banana, and the second lot at the rate of Rs. 4 for 5 bananas, his total collection would have been Rs. 460. Find the total number of bananas he had.

CHAPTER-4 QUADRATIC EQUATIONS

1. Which constant must be added and subtracted to solve the quadratic equation $9x^2 + \frac{3}{4}x - \sqrt{2} = 0$ by the method of completing the square?
   a. $\frac{1}{8}$
   b. $\frac{1}{64}$
   c. $\frac{1}{4}$
   d. $\frac{9}{64}$
2. $(x^2 + 1)^2 - x^2 = 0$ has
   a. Four real roots
   b. No real roots
   c. One real root
   d. Two real roots
3. Does there exist a quadratic equation whose coefficients are all distinct irrationals but both the roots are irrationals? Why?
4. A quadratic equation with integral coefficient has integral roots. Justify your answer.

5. If $b < 0, c < 0$, is it true that the roots of $x^2 + bx + c = 0$ are numerically equal and opposite in sign? Why?
6. Find the roots of the quadratic equation $2x^2 - \sqrt{5}x - 2 = 0$ using the quadratic formula.
7. Find the roots of the quadratic equation $2x^2 + \frac{5}{3}x - 2 = 0$ by the factorisation method.
8. Find the roots of the quadratic equation $\frac{1}{2}x^2 - \sqrt{11}x + 1 = 0$.
9. A natural number, when increased by 12, equals 160 times its reciprocal. Find the number.
10. Check whether the equation $6x^2 - 7x + 2 = 0$ has real roots, and if it has, find them by the method of completing the squares.

CHAPTER 5 ARITHMETIC PROGRESSIONS

1. The 11^{th} term of the AP:-
   $-5, \frac{-5}{2}, 0, \frac{5}{2}, \ldots \ldots$ Is

   a. -20
   b. 20
   c. -30
   d. 30
2. The sum of first five multiples of 3 is
   a. 45
   b. 55
   c. 65
   d. 75
3. In the AP: 10,5,0,-5,…….the common difference d is equal to 5. Justify whether the above statement is true or false.
4. Is 0 a term of the AP: 31,28,25,…….? Justify your answer.
5. The fee charged from a student every month by a school for the whole session, when the monthly fee is Rs. 3500. Do the list of numbers involved form an AP? Give reason for your answer.
6. Find a, b *and* c such that the following numbers are in AP: $a, 7, b, 23, c$.
7. Find the sum of $1 + (-2) + (-5) + (-8) + \cdots \ldots . . + (-236)$.
8. Find the sum of $\frac{a-b}{a+b}, \frac{3a-2b}{a+b}, \frac{5a-3b}{a+b} + \cdots$ to 11 terms.
9. Solve the equation $1 + 4 + 7 + 10 + \cdots \ldots \ldots \ldots \ldots + x = 287$.
10. The sum of first five terms of an AP and the sum of first seven terms of the same AP is 167. If the sum of first ten terms of this AP is 235, find the sum of its first twenty terms.

Science –

23-06-2026	Physics	• A convex mirror used for rear view on an automobile has a radius of curvature of 3.00 m. If a bus is located at 5.00 m from this mirror; find the position, nature and size of the image. • Define the following terms in the context of spherical mirrors: (i) Pole(ii) Centre of curvature (iii) Principal axis (iv)Principal Focus • A concave mirror produces a three times magnified image on a screen. If the object is placed 20 cm in front of the mirror, how far is the screen from the object? • The image of a candle flame placed at a distance of 30 cm from a mirror is formed on a screen placed in front of the mirror at a distance of 60 cm from its pole. What is the nature of the mirror? Find its focal length. • List four properties of the images formed by convex mirrors. Draw ray diagram in support of your answer. • An object 4.0 cm in size is placed 25.0 cm in front of a concave mirror of focal length 15.0 cm. At what distance from the mirror should a screen be placed in order to obtain a sharp image? Find the nature and size of the image.
24-06-2026	Physics	• Name the type of mirrors used in the following situations: (i) Headlights of a car (ii) Rear – view mirror of vehicle (iii) Solar furnace Support your answer with reason. • An object of size 7.0 cm is placed at 27 cm in front of a concave mirror of focal length 18 cm. At what distance from the mirror should a screen be placed, so that a sharp focussed image can be obtained? • If the image formed by a spherical mirror for all positions of the object placed in front of it is always erect and diminished, what type of mirror is it? Draw a labelled ray diagram to support your answer. • An object 5.0 cm in length is placed at a distance of 20 cm in front of a convex mirror of radius of curvature 30 cm. Find the position of the image, its nature and size. • The image formed by the spherical mirror is real, inverted and is of magnification -2. If the image is at a distance of 30 cm from the mirror, where is the object placed? Find the focal length of the mirror. List two characteristics of the image formed if the object is moved 10cm towards the

		mirror. • An object 2 cm high is placed at a distance of 16 cm from a concave mirror which produces a real image 3 cm high. (i) What is the focal length of the mirror? (ii) Find the position of the
25-06-2026- 29-06-2026		Make project File on following topics- Evolution (Roll.no 1to3) Periodic table (4to6) Allotropes of carbon (7to9) Types of chemical Reaction (10to12) Make and Female reproductive system (13to15) Explain the types of Salts (16to18)

S.ST.

Make a project on any one of the following topics:

(a) Consumer Awareness- Consumer rights, market exploitation, the role of government / consumer courts and case studies on Consumer Protection Act.

(b) **Sustainable Development-** Examine resource depletion, climate change, environmental conservation and steps taken by the Indian government to achieve Sustainable Development Goals (SDG)

(c) **Globalization-** Meaning, Production across the countries, World Trade Organization, The struggle for fair globalization.