SANT KARSHNI PUBLIC SCHOOL

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SUMMER HOLIDAY HOMEWORK 2025-26

CLASS- X

ENGLISH:

a. Prepare project file.

i. Robert frost ii. Ruskin Bond iii. Nelson Mandela iv. Robert Arthur

b. Learn the names of all the writers and poets of books. First flight and Foot print without feet.

c. Learn & Write rules of narration, determiners and parts of speech. Practice their exercises in your fair note book.

HINDI:

i. तुलसीदास जी का जीवन परिचय लिखो तथा पाठ - 2 के शब्दार्थ लिखो।
ii. किसी एक विषय पर अनुच्छेद लिखें।
i. आतंकवाद ii. बेटी बचाओ में अनुशासन iii. छात्र जीवन में अनुशासन
iii. औपचारिक व अनौपचारिक पत्र में अंतर स्पष्ट करें।
iv. अर्थालंकार को परिभाषित करते हुए अर्थालंकार के भेद व उदाहरण।
v. हिंदी भाषा विकास पर एक चार्ट तैयार कीजिये।
vi. सूर के पद पथ में गोपियों ने कहा कि हरी अब राजनीती पढ़ आये है गोपियों के इस कथन का उल्लेख करते हुए आज की वर्तमान राजनीति को स्पष्ट कीजिये ।
vii. 'माता का अंचल' पाठ के अनुसार घर में चर्चा करके बताएं आज का बचपन आपके पापा – दादा के बचपन से अलग क्यों हैं? साथ ही संयुक्त परिवार और एकल परिवार के गुण दोष स्पष्ट कीजिये ।

SCIENCE: **(Physics)**

1. What is light? What is its nature?
2. What is the speed of light in vacuum?
3. What is a mirror?
4. What is the focal length of a plane mirror?
5. Differentiate between real and virtual image.
6. What type of image is formed on a cinema screen?
7. Name the type of mirror used:- (i) as a reflector in search light (iii) by the dentist (ii) as side view mirror in vehicles. (iv) as a shaving mirror
8. Wherever you may stand in front of mirror, your image is always erect & same sized, what type of mirror is it?
9. (a) A ray of light strikes the mirror at an angle of 200 . What is the angle of reflection? (b) Give the angle of incidence and reflection for normal incidence.
10. A candle is kept in front of plane mirror at distance of 15 cm. What is distance between candle & its image?
11. Illustrate the structure of the human eye and how it works.
12. 1. Make a working model or a chart of any one of the following:

a. Periscope
b. Simple electric circuit (with a bulb and switch)

c. Reflection in spherical mirrors
d. Prism dispersion setup
13. Write a short report (300 words) on "Applications of Physics in Modern Technology".
Include examples like fiber optics, solar panels, or electric vehicles.
14. Optional: Make a poster on "Save Electricity, Save Earth".

(Chemistry)

1. Take A4 sheet and creatively draw / paint five types of chemical reactions.
2. Use colors to show the change from reactant to products.
3. Write short explanation in your own wood under each reactions.
4. Science on your plate.
   i. Observe and record any 3 chemical changes happening in your kitchen.
   For each write:
   a. What happened b. type of reaction c. How do you know it's a chemical change?
5. Crossword puzzle:
   Create a chemistry crossword puzzle using at least 10 terms from chapter.

(Biology)

1. My body a super machine.
   Create a small flipbook or booklet with 4 sections:
   a. Nutrition b. respiration c. Excretion d. Transportation
   Each page should include:
   a. A hand drawn diagram
   b. Simple explanation maximum 5 lines.
   c. One fur fact or did you know? About the process.
2. Bio journal:
   a. Go on a walk in your garden / farm / park and observe at least 3 living things.
   Draw them and answer:
   a. How do they get their food?
   b. How do thay breathe?
   c. One thing that surprised you about it.
3. Fun Task:
   a. Learn and record a short gesture based dance or skit explairing the journey of food in fur degestive system.
   b. Write a short script / diaglouge if you are acting it out.
4. Poster – save my organs.
   a. Design a creative and informative poster or organ health (like heart, kidney, lungs). Use slogans, facts and colorful illustrations.
5. Make your own mini magzine.
   a. Choose any one topic from chemistry or biology.
   b. Include: drawing, jokes, mini quiz, real world uses.

COMPUTER: 1. Find and write 50 keyboard shortcuts used in writer and calc.
2. Write one academic goal and one personal goal you wish to achieve in your life.

3. List 3 healthy strategies that you can use to manage stress.
4. Research and explain the differences between the following document file formats. Discuss their advantages, disadvantages, and common use cases:

.odt (Open Document Text)
.doc / .docx (Microsoft Word Document)
.pdf (Portable Document Format)
.txt (Plain Text File)
.rtf (Rich Text Format)
5. Page 1: What is a Template? Define what a template is in your own words.
Page 2: Why Use Templates? Explain the advantages of using templates (e.g., consistency, time-saving). Give two specific examples of when you would use a template (e.g., for a resume, a business letter, a project report). Draw a simple representation of a template structure for one of your examples.

SST: **(History)**

1. Find out more about nationalist symbols in countries outside Europe. For one or two countries, collect examples of pictures, posters or music that are symbols of nationalism. How are these different from European examples?

(Economics)

1. Prepare project on Narmada Bachao Andolan.

(Civics)

1. Prepare project on Why power sharing is desirable and its forms.

Mathematics:

4.2 Quadratic Equations

VSA (1 mark)

1. If the sum of the roots of the quadratic equation $ky^2 - 11y + (k - 23) = 0$ is $\frac{13}{21}$ more than the product of the roots, then find the value of k.
(Term II, 2021-22)

2. Write the quadratic equation in x whose roots are 2 and -5. (2021 C)

3. If one root of the quadratic equation $2x^2 + 2x + k = 0$ is $-\frac{1}{3}$, then find the value of k. *(2019 C)*

4. Find the value of k for which the roots of the equation $3x^2 - 10x + k = 0$ are reciprocal of each other. (Delhi 2019)

5. Find the value of k for which $x = 2$ is a solution of the equation $kx^2 + 2x - 3 = 0$.
(A/ 2019)

6. If $x = 3$ is one root of the quadratic equation $x^2 - 2kx - 6 = 0$, then find the value of k.(2018)

SAI (2 marks)

8. Find the sum and product of the roots of the quadratic equation $2x^2 - 9x + 4 = 0$. (2023)

9. Find the value of p, for which one root of the quadratic equation $px^2 - 14x + 8 = 0$ is 6 times the other. (AI 2017)

10. If $x = 2/3$ and $x = -3$ are roots of the quadratic equation $ax^2 + 7x + b = 0$, find the values of a and b. (Delhi 2016)

SA II (3 marks)

11. Find the value of 'p' for which one root of the quadratic equation $px^2 - 14x + 8 = 0$ is 6 times the other. (2023)

12. One root of the quadratic equation $2x^2 - 8x - k = 0$ is $\frac{5}{2}$. Find the value of *k*. Also, find the other root. *(2021 C)*

4.3 Solution of a Quadratic Equation by Factorisation

MCQ

13. The roots of the equation $x^2 + 3x - 10 = 0$ are
(a) 2,-5
(b) -2,5
(c) 2,5
(d) -2,-5 (2023)

SAI (2 marks)

14. Solve the quadratic equation for x:
$x^2-2ax - (4b^2 - a^2)=0$ (Term II, 2021-22, AI 2015)

15. Solve for x:

$\frac{x+1}{x-1}+\frac{x-2}{x+2}=4-\frac{2x+3}{x-2}; x\neq 1,-2,2$ *(Delhi 2016)*

16. Solve for x:$\sqrt{2x+9}+x=13$ (AI 2016)

17. Solve for x: $\sqrt{6x+7}-(2x-7)=0$ (AI 2016)

18. A two digit number is four times the sum of the digits. It is also equal to 3 times the product of digits. Find the number. (Foreign 2016)

19.

Solve for $x: \frac{1}{x-3}-\frac{1}{x+5}=\frac{1}{6}, x\neq 3,-5$ *(Foreign 2016)*

20.

Solve for x (in terms of a and b) :

$\frac{a}{x-b}+\frac{b}{x-a}=2, x \neq a,b$ *(Foreign 2016)*

21. Solve the following quadratic equation for x:
$4x^2-4a^2x + (a - b) = 0$ (Delhi 2015)

22. Solve the following quadratic equation for x:
$9x^2- 6b2x-(a - b) = 0$ (Delhi 2015)

23. Solve the following quadratic equation for x:
$4x^2+4bx - (a^2 - b^2)=0$ (AI 2015)

24. Solve for x:
$x^2-(\sqrt{3}+1)x+\sqrt{3}=0$ (Foreign 2015)

25. Solve the quadratic equation $2x^2 + ax - a^2 = 0$ for x. (Delhi 2014) (Ev)

SA II (3 marks)

26. Sum of the areas of two squares is 157 m^2. If the sum of their perimeters is 68 m, find the sides of the two squares. (2019)

27. A plane left 30 minutes later than its scheduled time and in order to reach the destination 1500 km away in time, it had to increase its speed by 100 km/h from the usual speed. Find its usual speed. (2018)

28. Solve for x:

$\frac{2x}{x-3}+\frac{1}{2x+3}+\frac{3x+9}{(x-3)(2x+3)}=0, x \neq 3,-3/2$

(Delhi 2016)

29. Solve the following quadratic equation for x:

$x^2+\left(\frac{a}{a+b}+\frac{a+b}{a}\right)x+1=0$ *(Delhi 2016)*

30. Solve for x:

$\frac{1}{(x-1)(x-2)}+\frac{1}{(x-2)(x-3)}=\frac{2}{3}, x \neq 1,2,3$ *(AI 2016)*

31. Three consecutive natural numbers are such that the square of the middle number exceeds the difference of the squares of the other two by 60. Find the numbers. (Al 2016)

32.

Solve for $x: \frac{1}{x}+\frac{2}{2x-3}=\frac{1}{x-2}, x \neq 0, \frac{3}{2}, 2.$

(Foreign 2016)

33. Solve for x:
$2x^2+6\sqrt{3}x-60=0$ (Al 2015)

34. Solve for x:
$x^2+5x-(a^2+a-6)=0$ (Foreign 2015)

35. Solve the equation

$\frac{4}{x}-3=\frac{5}{2x+3}; x \neq 0, -\frac{3}{2}$, for x. *(Delhi 2014)*

36.

Solve the equation $\frac{3}{x+1}-\frac{1}{2}=\frac{2}{3x-1}; x \neq -1, x \neq \frac{1}{3}$, for x.

(Delhi 2014)

37. Solve the equation

$\frac{14}{x+3}-1=\frac{5}{x+1}; x \neq -3, -1$, for x. *(Delhi 2014)*

38. Solve for x:

$\frac{16}{x}-1=\frac{15}{x+1}; x \neq 0, -1$ *(Al 2014)*

LA (4/5/6 marks)

39. In the picture given below, one can see a rectangular in-ground swimming pool installed by a family in their backyard. There is a concrete sidewalk around the pool of width x m. The outside edges of the sidewalk measure 7 m and 12 m. The area of the pool is 36 sq.m.

Based on the information given above, form a quadratic equation in terms of x. Find the width of the sidewalk around the pool. (Term II, 2021-22)

40. The sum of two numbers is 34. If 3 is subtracted from one number and 2 is added to another, the product of these two numbers becomes 260. Find the numbers. (Term II, 2021-22)

41. The hypotenuse (in cm) of a right angled triangle is 6 cm more than twice the length of the shortest side. If the length of third side is 6 cm less than thrice the length of shortest side, then find the dimensions of the triangle. (Term II, 2021-22)

42. A 2-digit number is such that the product of its digits is 24. If 18 is subtracted from the number, the digits interchange their places. Find the number. (Term II, 2021-22)

43. Sum of the areas of two squares is 544 m^2. If the difference of their perimeters is 32 m, find the sides of the two squares. (2020)

44. A motorboat whose speed is 18 km/h in still water takes 1 hour more to go 24 km upstream than to return downstream to the same spot. Find the speed of the stream. (NCERT, 2020, 2018, AI 2014)

45. Solve the following equation for x:

$$\frac{1}{x+1}+\frac{2}{x+2}=\frac{7}{x+5}, x\neq -1,-2,-5$$ *(2019 C)*

46.

Two water taps together can fill a tank in $1\frac{7}{8}$ hours.

The tap with longer diameter takes 2 hours less than the tap with smaller one to fill the tank separately. Find the time in which each tap can fill the tank separately. (Delhi 2019)

47. A train travels 360 km at a uniform speed. If the speed had been 5 km/hr more, it would have taken
1 hr less for the same journey. Find the speed of the train. (NCERT, AI 2019)

48. Solve for x:

$$\frac{1}{a+b+x}=\frac{1}{a}+\frac{1}{b}+\frac{1}{x};\ a\neq b\neq 0, x\neq 0, x\neq -(a+b)$$

(AI 2019)

49. A train travels at a certain average speed for a distance of 63 km and then travels a distance of 72 km at an average speed of 6 km/hr more than its original speed. If it takes 3 hours to complete total journey, what is the original average speed? (2018)

50. Speed of a boat in still water is 15 km/h. It goes 30 km upstream and returns back at the same point in 4 hours 30 minutes. Find the speed of the stream. (Delhi 2017)

51. Solve for x:

$$\frac{1}{x+1}+\frac{3}{5x+1}=\frac{5}{x+4},\ x\neq -1,-\frac{1}{5},-4$$ *(AI 2017)*

52. Two taps running together can fill a tank in

$3\frac{1}{13}$ hours. If one tap takes 3 hours more than the

other to fill the tank, then how much time will each tap take to fill the tank? (AI 2017)

53. A passenger, while boarding the plane, slipped from the stairs and got hurt. The pilot took the passenger in the emergency clinic at the airport for treatment. Due to this, the plane got delayed by half an hour. To reach the destination 1500 km away in time, so that the passengers could catch the connecting flight, the speed of the plane was increased by 250 km/hour than the usual speed. Find the usual speed of the plane. What value is depicted in this question? (Delhi 2016)

Pair of Linear Equations in Two Variables

MCQ

1. The pair of linear equations $2x = 5y + 6$ and $15y=6x-18$ represents two lines which are
(a) intersecting
(b) parallel
(c) coincident
(d) either intersecting or parallel
(2023)

2. The pair of linear equations
$\frac{3x}{2}+\frac{5y}{3}=7$ and $9x + 10y = 14$ is
(a) consistent
(b) inconsistent
(c) consistent with one solution
(d) consistent with many solutions (2020)

SAI (2 marks)

3. Find whether the lines representing the following pair of linear equations intersect at a point, are parallel or coincident:
$3x + y = 7, 6x + 2y = 8$ (Board Term 1, 2017)

SA I (2 marks)

3. Find whether the lines representing the following pair of linear equations intersect at a point, are parallel or coincident: $3x + y = 7, 6x + 2y = 8$ (Board Term 1, 2017)

4. Find whether the lines representing the following pair of linear equations intersect at a point, are parallel or coincident:

$\frac{3}{2}x+\frac{5}{3}y=7$ and $\frac{3}{2}x+\frac{2}{3}y=6$ *(Board Term I, 2017)*

5. Find whether the lines representing the following pair of linear equations intersect at a point, are parallel or coincident:
$2x + y + 3 = 0$, $4x + 2y + 6 = 0$ (Board Term I, 2017)

3.2 Graphical Method of Solution of a Pair of Linear Equations

MCQ

6. The pair of lines represented by the linear equations $3x + 2y = 7$ and $4x+8y - 11 = 0$ are
(a) perpendicular
(b) parallel
(c) intersecting
(d) coincident (Term I, 2021-22)

7. The pair of equations $y = 2$ and $y = -3$ has
(a) one solution
(b) two solutions
(c) infinitely many solutions
(d) no solution (Term I, 2021-22)

8. The pair of equations $x = 5$ and $y = 5$ has
(a) no solution
(b) unique solution
(c) many solutions
(d) only solution (0, 0) (2020 C)

9. The pair of equations $x = a$ and $y = b$ graphically represent lines which are
(a) Intersecting at (a, b)
(b) Intersecting at (b, a)
(c) Coincident
(d) Parallel (2020 C)

SAI (2 marks)

10. Solve the pair of equations $x = 5$ and $y = 7$ graphically. (2023)

11. Using graphical method, find whether pair of equations $x = 0$ and $y = -3$, is consistent or not. (2023)

SA II (3 marks)

12. Determine graphically the coordinates of the vertices of a triangle, the equations of whose sides are given by $2yx = 8$, $5y-x = 14$ and $y = 2x = 1$. (2020)

13. Solve the equations $x + 2y = 6$ and $2x - 5y = 12$ graphically. (2020 C)

14. Draw the graph of the equations $x - y + 1 = 0$ and $3x+2y-12 = 0$. Using this graph, find the values of x and y which satisfy both the equations. (2019)

LA (4/5/6 marks)

15. For Uttarakhand flood victims two sections A and B of class X contributed 1500. If the contribution of X A was 100 less than that of X B, find graphically the amounts contributed by both the sections. (Board Term 1, 2017)

16. Three lines $3x + 5y = 15$, $6x - 5y = 30$ and $x = 0$ are enclosing a beautiful triangular park. Find the points of intersection of the lines graphically and the area of the park if all measurements are in km. What type of behaviour should be expected by public in this type of park? (Board Term I, 2017)

17. Solve the following pair of linear equations graphically $6x - y + 4 = 0$ and $2x - 5y = 8$. Shade the region bounded by the lines and y-axis. (Board Term 1, 2017)

18. Find the graphically solution of $x - 2y = 0$ and $3x + 4y = 20$. (Board Term I, 2017)

19. Solve graphically the following pair of linear equations:
$2y-3x= 14$, $2x + 3y = 8$
Hence, shade the region enclosed by these lines and y-axis. (Board Term 1, 2017)

20. Draw the graph of the following pair of linear equations:
$x + 3y = 6$ and $2x-3y = 12$

Find the ratio of the areas of the two triangles formed by first line, $x = 0$, $y = 0$ and second line, $x = 0$, $y = 0$. (Board Term 1, 2016)

21. Solve the following pair of linear equations graphically:
$2x + y = 4$
$2x - y = 4$.
Also, find the co-ordinates of the vertices of the triangle formed by the lines with y-axis and also find the area of triangle. (Board Term 1, 2015)

3.3 Algebraic Methods of Solving a Pair of Linear Equations

MCQ

22. The value of k for which the pair of equations $kx = y + 2$ and $6x = 2y + 3$ has infinitely many solutions.
(a) is $k = 3$
(b) does not exist
(c) is $k = -3$
(d) is $k = 4$ (2023)

23. A father is three times as old as his son. In 12 years time, he will be twice as old as his son. The sum of the present ages of the father and the son is
(a) 36 years
(b) 48 years
(c) 60 years
(d) 42 years (Term I, 2021-22)

24. If $17x - 19y = 53$ and $19x - 17y = 55$, then the value of $(x + y)$ is
(a) 1
(b) -1
(c) 3
(d) -3 (Term I, 2021-22)

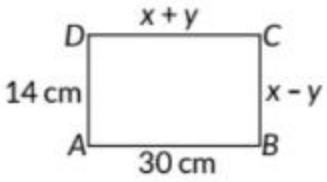
SAI (2 marks)

25. The sum of the numerator and the denominator of a fraction is 18. If the denominator is increased by 2, the fraction reduces to $\frac{1}{3}$. Find the fraction. *(2021C)*

26. The larger of two supplementary angles exceeds the smaller by 18°. Find the angles. (2019)

27. Solve the following pair of linear equations: $3x - 5y = 4$, $2y + 7 = 9x$ (2019)

28. In figure, ABCD is a rectangle. Find the values of x and y.



SA II (3 marks)

29. Half of the difference between two numbers is 2. The sum of the greater number and twice the smaller number is 13. Find the numbers. (2023)

30.

A fraction becomes $\frac{1}{3}$ when 1 is subtracted from the numerator and it becomes $\frac{1}{4}$ when 8 is added to its denominator. Find the fraction. *(2020)* AP

31. The present age of a father is three years more than three times the age of his son. Three years hence the father's age will be 10 years more than twice the age of the son. Determine their present ages. (2020) Ev

32. A father's age is three times the sum of the ages of his two children. After 5 years his age will be two times the sum of their ages. Find the present age of the father. (Delhi 2019)

33.

A fraction becomes $\frac{1}{3}$ when 2 is subtracted from the numerator and it becomes $\frac{1}{2}$ when 1 is subtracted from the denominator. Find the fraction. *(Delhi 2019)*

34. A part of monthly hostel charges in a college hostel are fixed and the remaining depends on the number of days one has taken food in the mess. When a student A takes food for 25 days, he has to pay 4,500, whereas a student B who takes food for 30 days, has to pay ₹ 5,200. Find the fixed charges per month and the cost of food per day. (Al 2019)

35. Solve by elimination $3x = y + 5$ and $5x - y = 11$. (Board Term 1, 2017)

Complete your Holiday Homework.

Note:- Summer holiday homework is available on school website:- www.santkarshnipublicschool.in and respective classes Whats app groups.