# APEX PUBLIC SCHOOL

SANT NAGAR , DELHI

## HOLIDAY HOMEWORK 2023-2024
## CLASS - X

# MATHEMATICS

**Project -Marine life of Lakshadweep, Andaman and Nicobar Islands**

**Activity-1**

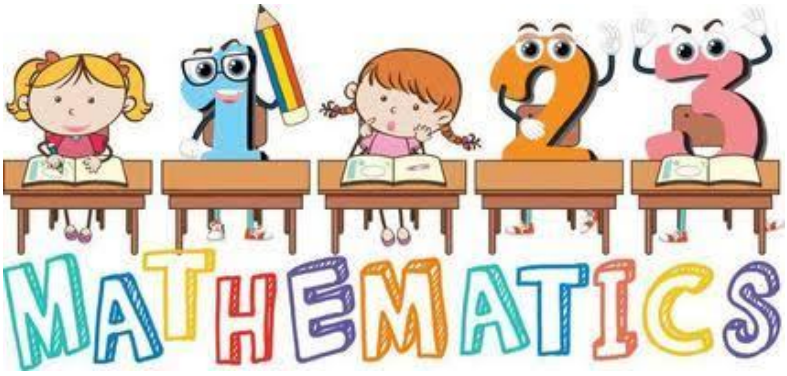
**To draw a graph of a quadratic polynomial equation and examine that: -The shape of the curve when the coefficient of X2 is negative-The shape of the curve when the coefficient of X2 is positive -Number of zeroes**

**Activity -2**

**Through the graphical method checking the condition of consistency or inconsistency in a pair of linear equation having two variables.**

**Modals of Mathematics**

1. **ModelEquations-Algebraic and Quadratic Model**
2. **Modal of clinometer using Trigonometry Ratio.**
3. **2-D to 3-D conversion working Model**



**> Complete these worksheet in separate Notebook.**

## WORKSHEET :- 1

## REAL NUMBER

1. Show that the cube of any positive integer is of the form $4m$, $4m+1$ or $4m+3$ for some integer $m$.
2. Prove that $\sqrt{3}$ is an irrational number.
3. State fundamental theorem of Arithmetic and hence find the unique factorization of 120.
4. Prove that $\sqrt{3}+\sqrt{5}$ is irrational
5. Prove that $5-\frac{3}{7}\sqrt{3}$ is an irrational number.
6. Prove that $\frac{1}{2-\sqrt{5}}$ is an irrational number.
7. Find HCF and LCM of 56 and 112 by prime factorization method.
8. Explain why:
   (i) $7 \times 11 \times 13 \times 15 + 15$ is a composite number
   (ii) $11 \times 13 \times 17 + 17$ is a composite number.
   (iii) $1 \times 2 \times 3 \times 5 \times 7 + 3 \times 7$ is a composite number.
9. On a morning walk, three perosns steps off together and their steps measure 40 cm, 42 cm, and 45 cm respectively. What is the minimum distance each should walk, so that each can cover the same distance in complete steps? (NCERT Exemplar)
10. During a sale, colour pencils were being sold in the pack of 24 each and crayons in the pack of 32 each. If you want full packs of both and the same number of pencils and crayons, how many packets of each would you need to buy? (CBSE : 2017)
11. Find the largest number that divides 31 and 99 leaving remainder 5 and 8 respectively.
12. The HCF of 65 and 117 is expressible in the form 65 m – 117. Find the value of m. Also find the LCM of 65 and 117 using prime factorisation method.
13. Using Euclid's division algorithm, find the largest number that divides 1251, 9377 and 15628 leaving remainder 1, 2 and 3 respectively. (NCERT Exemplar)
14. Show that square of any odd integer is of the form 4m + 1, for some integer m.
15. Find the HCF of 180, 252 and 324 by Euclid's Division algorithm.
16. Find the greatest number of six digits exactly divisible by 18, 24 and 36.
17. Three bells ring at intervals of 9, 12, 15 minutes respectively. If they start ringing together at a time, after what time will they next ring together?
18. Show t hat only one of the number of $n$, $n+2$ and $n+4$ is divisble by 3.
19. Find HCF and LCM of 404 and 96 and verify that HCF × LCM = Product of two given number. (CBSE : 2018)

### LONG ANSWER TYPE QUESTIONS

20. Find the HCF of 56, 96, 324 by Euclid's algorithm.
21. Show that any positive odd integer is of the form $6q+1$, $6q+3$ or $6q+5$, where $q$ is some integer.
22. Prove that the square of any positive integer is of the form $5q$, $5q+1$, $5q+4$ for some integer, $q$.

**WORKSHEET :- 2**

**Polynomial**

**VERY SHORT ANSWER TYPE QUESTIONS**

**1.** If one root of the polynomial $P(x) = 5x^2 + 13x + K$ is reciprocal of the other, then value of $k$ is

(a) 0 (b) 5 (c) $\frac{1}{6}$ (d) 6

**2.** If $\alpha$ and $\beta$ are the zeroes of the polynomial $p(x) = x^2 - p(x + 1) - c$ such that $(\alpha + 1)(\beta + 1) = 0$, the c = _____ .

**3.** If one zero of the quadratic polynomial $x^2 + 3x + k$ is 2, then the value of $k$ is

(a) 10 (b) – 10 (c) 5 (d) – 5

**4.** If the zeroes of the quadratic polynomial $x^2 + (a + 1)x + b$ are 2 and – 3, then

(a) $a = -7, b = -1$ (b) $a = 5, b = -1$

(c) $a = 2, b = -6$ (d) $a = 0, b = -6$

**5.** What should be added to the polynomial $x^2 - 5x + 4$, so that 3 is the zero of the resulting polynomial:

(a) 1 (b) 2 (c) 4 (d) 5

**6.** If $\alpha$ and $\beta$ are the roots of the polynomial

$f(x) = x^2 + x + 1$, then $\frac{1}{\alpha} + \frac{1}{\beta} =$

**7.** If a quadratic polynomial $f(x)$ is not factorizable into linear factors, then it has no real zero. (True/False)

**8.** If a quadratic polynomial $f(x)$ is a square of a linear polynomial, then its two zeros are coincident. (True/False).

**9.** The product of the zeros of $x^3 + 4x^2 + x - 6$ is

(a) – 4 (b) 4 (c) 6 (d) 6

**10.** Given that two of the zeros of the cubic polynomial $ax^3 + bx^2 + cx + d$ are 0, the third zero is

(a) $-\frac{b}{a}$ (b) $\frac{b}{a}$ (c) $\frac{c}{a}$ (d) $-\frac{d}{a}$

**11.** What will be the number of zeros of a linear polynomial $p(x)$ if its graph (*i*) passes through the origin. (*ii*) doesn't intersect or touch $x$-axis at any point?

**12.** Find the quadratic polynomial whose zeros are

$(5 + 2\sqrt{3})$ and $(5 - 2\sqrt{3})$

13. If one zero of $p(x) = 4x^2 - (8k^2 - 40k)x - 9$ is negative of the other, find values of $k$.
14. What number should be added to the polynomial $x^2 - 5x + 4$, so that 3 is a zero of polynomial so obtained.
15. How many (*i*) maximum (*ii*) minimum number of zeroes can a quadratic polynomial have?
16. What will be the number of real zeros of the polynomial $x^2 + 1$?
17. If $\alpha$ and $\beta$ are zeros of polynomial $6x^2 - 7x - 3$, then form a quadratic polynomial where zeros are $2\alpha$ and $2\beta$ (CBSE)
18. If $\alpha$ and $\frac{1}{\alpha}$ are zeros of $4x^2 - 17x + k - 4$, find the value of $k$.
19. What will be the number of zeros of the polynomials whose graphs are parallel to (*i*) $y$-axis (ii) $x$-axis?
20. What will be number of zeros of the polynomials whose graphs are either touching or intersecting the axis only at the points:
(*i*) (–3, 0), (0, 2) & (3, 0) (*ii*) (0, 4), (0, 0) and (0, –4)

**SHORT ANSWER TYPE (I) QUESTIONS**

21. If –3 is one of the zeros of the polynomial $(k-1)x^2 + kx + 1$, find the value of $k$.
22. If the product of zeros of $ax^2 - 6x - 6$ is 4, find the value of a. Hence find the sum of its zeros.
23. If zeros of $x^2 - kx + 6$ are in the ratio 3 : 2, find $k$.
24. If one zero of the quadratic polynomial $(k^2 + k)x^2 + 68x + 6k$ is reciprocal of the other, find $k$.

# ENGLISH


**Q1.Answer in 100-120 words**

**i.** Read the given anecdote and analyse the similarities and differences with reference to 'A Letter to God'.

A very poor woman called-in a radio station asking for help from God. A non-believer, also listening to this radio program, decided to make fun of the woman. He got her address, called his secretary and ordered her to buy food and take it to the woman. However, the instruction was: "When the woman asks who sent the food, tell her that it's from the devil." When the secretary arrived at the

woman's house, the woman was very happy and grateful for the help. The Secretary then asked her, "Don't you want to know who sent the food?" The woman replied, "No, I don't even care because when God orders, even the devil obeys! **(A LETTER TO GOD)**

**ii.** As a crow you feel highly injured by the incorrect perception humans have about your species. Imagine yourself to be a crow and write your opinion about this prejudice**. (DUST OF SNOW)**

**iii.** Imagine that one of Mr. Herriot's partners can understand the language of dogs and listens to Tricki on his last night with them : **(A TRUIMPH OF SURGERY)**

a) What might Tricki share about his experience? (60 words)

b) How would he evaluate it in comparison to his home experience? (60 words)

**iv.** Fire and Ice projects a pessimistic outlook. Comment **(FIRE & ICE)**

#Someone who is pessimistic thinks that bad things are going to happen. # Pessimistic outlook means the tendency to expect only bad outcomes; unhopeful.

**v.** Your teacher organised a mini-debate competition in class on the topic:

Courage, Wisdom and Generosity are the ONLY attributes of a remarkable leader. Write the debatescript with two points to supplement your stand, either as a proposition speaker (FOR) or as an opposition one (AGAINST). (Each point should be for 60 words )

## (NELSON MANDELA: LONG WALK TO FREEDOM)

**Q2. Design a poster** based on the theme ' Fire and Ice' by Robert Frost.

## Q3. FRAMING A QUESTIONNAIRE:

Imagine yourself as a reporter attending the inaugural ceremony in South Africa.
Prepare a set of 10 questions that you would ask Nelson Mandela on being elected as South Africa's first

black president.

**Q4**. You are James/Jenny, Librarian, Apex Public School, Delhi. Write a letter to the Manager of Amar Publication House, Mumbai, placing an order for 4 sets of English books for grades 6-8 published by N.C.E.R.T. in not more than 120 words. Mention school discount, mode of payment and date of delivery. (CBSE 2021-22)

**Q5**. Many students from different parts of the country come to Delhi to study. Finding affordable accommodation is the main problem faced by them. Landlords charge exorbitant rents and in some cases refuse to rent rooms to them because of their different food habits and culture. The hostel facilityprovided by educational institutions is too inadequate to meet the demand. Write a letter in 100-150 words to the editor of a local daily drawing attention of the authorities and requesting them to take appropriate action. You are Andrew/Anne, 10, Karol Bagh, Delhi.

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**Q6**. People play a very important role in our lives. Describe in vivid detail, any one person and show howthat person has been a very special influence in your life. (250 words)

# Q7. Project -Marine life of Lakshadweep, Andaman and Nicobar Islands

**NOTE: Do your Holiday's Homework in A4 size ruling sheets and put them all in one file.**

## हिंदी गृहकार्य


*** दिए गए प्रश्नों के उत्तर A4 शीट्स पर लिखने हैं और फाइल में लगाना है |**

**1. अपनी मनपसंद की कोई भी कहानी या उपन्यास पढ़ें तथा उसका सार लिखें |**

**2.स्कूली जीवन की अपनी कई खट्टी - मीठी यादों को साझा करें |**

**3. विद्यालय की वार्षिक पत्रिका के लिए हिंदी की कोई भी एक स्वरचित कविता, कहानी आदि लिखें |**

**4. कबीर की साखियों द्वारा कौन-कौन सी नीतिपरक बातें सीखने को मिलती हैं ? अपने शब्दों में लिखिए |**

**5. 'आज की युवा पीढ़ी और नैतिक मूल्य' विषय पर लगभग 120 शब्दों में अनुच्छेद लिखिए |**

**6. भक्तिकाल के किन्हीं पाँच कवियों के जीवन पर आधारित चित्रों का कोलाज बनाएँ |**

**7. हरिहर काका कहानी में समाज के किस कटु सत्य को उजागर किया गया है ?**

**8. 'पदबन्ध' के प्रत्येक भेद के पाँच - पाँच उदाहरण लिखिए |**

**9.*अपने अनुक्रमांक के अनुसार  प्रोजेक्ट बनाएँ(चार्ट, मॉडल, वर्किंग मॉडल)*-**

**1-10: भारत के विभिन्न त्योहार**

**11-20: सोशल मीडिया के सकारात्मक व नकारात्मक प्रभाव**

**21-30: G-20 सम्मेलन**

**31-40: हिंदी व्याकरण व साहित्य से संबंधित**

**41-45: कोई भी विषय**

**10.*'मीरा के पद' पर आकर्षक कवर पेज बनाते हुए चित्र सहित व उनके जीवनकाल, रचनाओं, भाषा शैली, पद आदि जानकारी लिखकर परियोजना कार्य बनाएँ (A4 शीट्स पर) |***

## SCIENCE


Project -Marine life of Lakshadweep, Andaman and Nicobar Islands

## Biology

Make a working model on any one topic given below

1.Digestive System

2.respiratory System

3.structure of human heart

4.Excretory System

Make mind map on the following topic

1.circulation of blood in human heart.

2.digestion in human beings

Make portfolio for science in file.

Complete the worksheet given below and Complete and learn questions and answers of ch- Life Process.

## ●Physics

1.Write an essay on Light Pollution.

Or

2. How did the chapter “Light” help you in

understanding the application of reflection

and refraction in real life situation?

3. How would our life change if we no longer

have electricity supply? (100 words)

4.Physics

1a.Write an essay on Light Pollution.

Or

1.bHow did the chapter “Light” help you in

understanding the application of reflection

and refraction in real life situation?

2.TOPIC: SOURCES OF ENERGY

TYPE: INDIVIDUAL ACTIVITY

ANY ONE OF THE TOPIC CAN BE DONE

I. Visit a near by village where they are using solar energy to lift under ground water for farming.

II. Visit a near by place where they are using gobar -gas plant or a bio-gas plant for lighting and cooking.

III, Visit a nearby place where they are using solar panels for collecting solar energy

IV Visit place where wind energy is used to generate electricity.

V. Collect information of techniques used for food processing in solar dryer.

VI. Make models of solar cooker or solar water heater, nuclear reactor. INFORMATION TO BE COLLECTED

1. Place visited. 2. Name the person using it 3. How did he came to know about the source of energy? 4. Money spended for installing the plant 4. Photographs.

*Written work in A 4 size paper.

3.Do assignment 1.

## ●Chemistry

Case study: How the subject of Chemistry is used in space?

2. Prepare a PPT on “Acids and bases”.

3. Write an article on “Importance of

noble gases.

4.Do assignment 1.

# SOCIAL SCIENCE


1 Prepare a project on any one of the topics.(15 pages)

Consumer Awareness

Or

Social issues

Or

Sustainable Development

2. Use white or light coloured interleaf sheets.

3. Complete written work.

4. Revise all the chapters taught.

# INFORMATION AND TECHNOLOGY(402)


1. Draw and describe model of communication.
2. Define styles and describe types of style.
3. Describe in brief the various components of picture toolbar and picture dialogue box.
4. Describe grouping and ungrouping of image and paste picture of each step.
5. Define cropping and explain keep scale and keep image size option.
6. Write short keys
    a. To open new file
    b. To open existing file
    c. To save file
    d. To close window or any application
    e. To cut the content
    f. To copy the content
    g. To paste the content
    h. To make content bold
    i. To make content italic
    j. To make content underline
    k. Refresh
7. Write extension and default file name of
    a. OpenOffice Writer

b. OpenOffice Impress
c. OpenOffice Calc
d. OpenOffice Base

8. Learn all the chapters done in class
9. Do the sample question in notebook that will be sent during Holidays in group
10. Link to download OpenOffice - https://www.openoffice.org/download/index.html

ART


**Make any one famous character portrait on A3 size sheet ( Colour medium - water colour , mix media , poster, acrylic any one )**