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HOLIDAY HOMEWORK FOR SUMMER VACATIONS (2021-22)
CLASS- X
SUBJECT- MATHEMATICS

INSTRUCTIONS:

- *Read all the questions carefully before solving. Write the solution of questions in a Seperate holiday homework notebook.*
- *Complete the project separately on A4 sheets in neat and clear hand writing and make it attractive.*
- *Write your name, class and section clearly at the front cover of project file.*

Section A (Questions)

1. Check whether $75/455$ is terminating or non-terminating decimal expansion.
2. $654.737373\dots$ is a rational number. [TRUE/FALSE]
3. A polynomial of degree 2 is called ----- polynomial.(Cubic/ quadratic/ linear)
4. $\sqrt{25}$ is a -----number. (rational/irrational)
5. Find the quadratic polynomial whose sum and products of the zeros are 5 and -6.
6. Find the H.C.F. of 567 and 255 using Euclid's division lemma.
7. Find the LCM and HCF of 510 and 92 and check whether $\text{LCM} \times \text{HCF} = \text{product of the given numbers}$.
8. Find the zeros of :
(i) $6x^2 - 7x - 3$ (ii) $4x^2 - 4x + 1$

9. Divide $x^3 - 3x^2 + 5x - 3$ by $x^2 - 2$ and find the quotient and remainder.
10. Prove that $\sqrt{3}$ is an irrational number.
11. Prove that $2 + 5\sqrt{3}$ is an irrational number.
12. Find the zeroes of the following polynomials by factorisation method and verify the relations between the zeroes and the coefficients of the polynomials:
- $4x^2 - 3x - 1$
 - $3x^2 + 4x - 4$
 - $5t^2 + 12t + 7$
13. For each of the following, find a quadratic polynomial whose sum and product respectively of the zeroes are as given. Also find the zeroes of these polynomials by factorisation.
- | | |
|---------------------------------|---|
| (i) $\frac{-8}{3}, \frac{4}{3}$ | (ii) $\frac{21}{8}, \frac{5}{16}$ |
| (iii) $-2\sqrt{3}, -9$ | (iv) $\frac{-3}{2\sqrt{5}}, -\frac{1}{2}$ |
14. Given that $\sqrt{2}$ is a zero of the cubic polynomial $6x^3 + \sqrt{2}x^2 - 10x - 4\sqrt{2}$, find its other two zeroes.
15. 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.
16. Prepare 10 -10 MCQ TYPE QUESTIONS from CHAPTER-1 and 2. Also write the solutions for quiz competition in class. (Prepare in soft copy)

Section B (project work/activities)

- 17.** Make a project on the title “ **π - WORLD'S MOST MYSTERIOUS NUMBER**”. It must contain 3-5 pages
- 18.** Perform following activities and write in activity notebook:

Activity 1: OBJECTIVE: To find the HCF of two numbers experimentally based on Euclid Division Lemma.

Activity 2: OBJECTIVE: To draw the graph of a quadratic polynomial and observe:

- (i) The shape of the curve when the coefficient of x^2 is positive.
- (ii) The shape of the curve when the coefficient of x^2 is negative.
- (iii) Its number of zeroes.

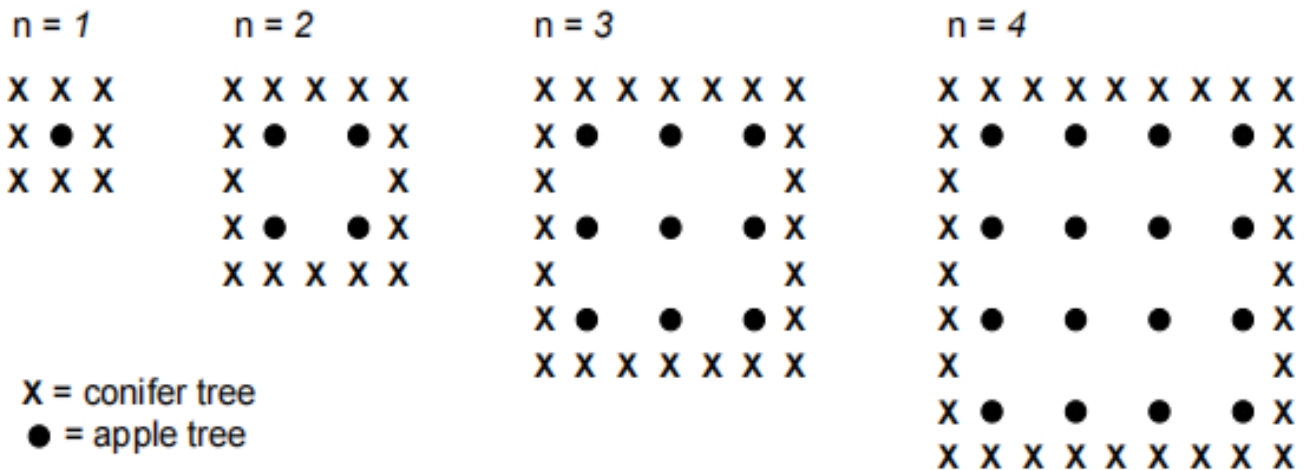
- 19.** Prepare a mathematical Toy (take help from Google/ youtube) Write a brief Write-up about it and prepare for the class presentation

20. CCT QUESTIONS

M136: Apples

A farmer plants apple trees in a square pattern. In order to protect the apple trees against the wind he plants conifer trees all around the orchard.

Here you see a diagram of this situation where you can see the pattern of apple trees and conifer trees for any number (n) of rows of apple trees:



Question 1: APPLES

M136Q01- 01 02 11 12 21 99

Complete the table:

n	Number of apple trees	Number of conifer trees
1	1	8
2	4	
3		
4		
5		

Question 2: APPLES

M136Q02- 00 11 12 13 14 15 99

There are two formulae you can use to calculate the number of apple trees and the number of conifer trees for the pattern described above:

$$\text{Number of apple trees} = n^2$$

$$\text{Number of conifer trees} = 8n$$

where n is the number of rows of apple trees.

There is a value of n for which the number of apple trees equals the number of conifer trees. Find the value of n and show your method of calculating this.

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Question 3: APPLES

M136Q03- 01 02 11 21 99

Suppose the farmer wants to make a much larger orchard with many rows of trees. As the farmer makes the orchard bigger, which will increase more quickly: the number of apple trees or the number of conifer trees? Explain how you found your answer.

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