ST. MICHAEL'S SR. SEC. SCHOOL

3, PUSA ROAD, NEW DELHI

CLASS 10 HOLIDAY HOMEWORK

MATHEMATICS

REAL NUMBERS- CASE STUDY

CASE STUDY 1.

To enhance the reading skills of grade X students, the school nominates you and two of your friends to set up a class library. There are two sections- section A and section B of grade X. There are 45 students in section A and 48 students in section B.

What is the minimum number of books you will acquire for the class library, so that they can be distributed equally among students of Section A or Section B?

1. If the product of two positive integers is equal to the product of their HCF and LCM is true then, the HCF (45 , 48) ?In how many ways can you distribute 360 equally to section A (42 students) section B (45 students) all books may or may not be used

2. Show with example that when we multiply consecutive prime numbers and add 1 we get

Prime number

3. If p and q are positive integers such that p =128 ab^2 and q=96a^2b, where a , b are prime numbers, then the LCM (p, q) is ?

CASE STUDY 2:

A seminar is being conducted by an Educational Organization, where the participants will be educators of different subjects. The number of participants in Hindi, English and Mathematics are 64, 80 and 120 respectively.

In each room the same number of participants are to be seated and all of them being in the same subject, hence maximum number participants that can accommodated in each room are

1. What is the minimum number of rooms required during the event?

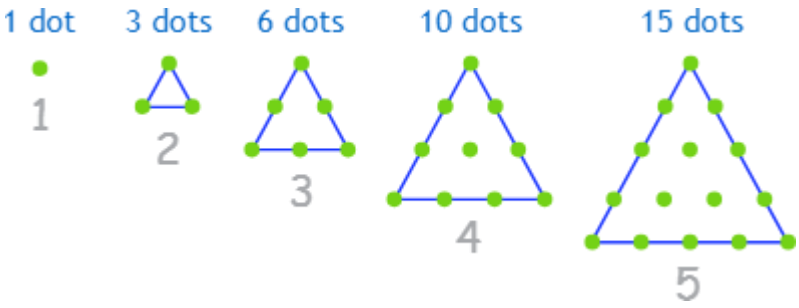
2. The LCM of 60, 80 and 120 is

3. Is HCF(60, 80 and 120) * LCM(60, 80 and 120) = 60*80*120

4. What is the maximum number of groups possible if group should have more than 1 person

CASE STUDY 3:

A Mathematics Exhibition is being conducted in your School and one of your friends is making a model of a factor tree of triangular numbers. He has some difficulty and asks for your help in completing a quiz for the audience.



Draw factor tree of next five triangular number

POLYNOMIALS- CASE STUDY

CASE STUDY 1:

The below picture are few natural examples of parabolic shape which is represented by a quadratic polynomial. A parabolic arch is an arch in the shape of a parabola. In structures, their curve represents an efficient method of load, and so can be found in bridges and in architecture in a variety of forms.

[i] In the standard form of quadratic polynomial, $ax^2 + bx + c$, a, b and c are

[ii] If the vertex of wire is on y axis then which one represent the curve of wire

a. $P(x) = x^2 - 900$

b. $P(x) = x^2 + 900$

c. $P(x) = -x^2 - 900$

3. If a and 1/a are the zeroes of the qudratic polynomial $2x^2 - x + 10k$, then k is

4. The graph of x^2+900

   a. Intersects x- axis at two distinct points.

   b. Touches x- axis at a point.

   c. Neither touches nor intersects x- axis.

   d. Either touches or intersects x- axis.

5. If the sum of the roots is –p and product of the roots is 1/p then find quadratic polynomial

CASE STUDY 2:

https://www.mathsisfun.com/geometry/parabola.htm

For polynomial $P(x) = ax^2 + b$ put

following values and trace graph

[I] a= -16 ,b = 25

[ii] a= -100 , b = 144

[iii]Verify the relation of zeroes and coefficient zeroes of the quadratic polynomial $4\sqrt{3}x^2 + 5x + 2\sqrt{3}$.

[iv]The graph of parabola opens upwards, if

b. $a = 0$

c. $a < 0$

d. $a > 0$

e. $a \geq 0$

LINEAR EQUATIONS INTWO VARIABLES

CASE STUDY-1:

A test consists of 'True' or 'False' questions. 5 mark is awarded for every correct answer while 2 mark is deducted for every wrong answer no marks are awarded if he does not attempt. A student attempted by 40 questions and got marks.If answer to all questions he attempted by guessing were wrong, then how many questions did he answer correctly?

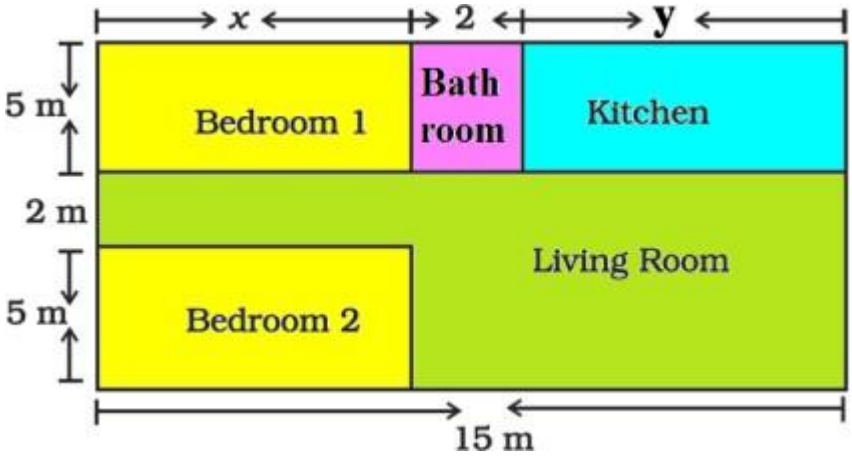
1. Express as an equation How many questions did he guess?

2. How many answers were wrong ?

3. If answer to all questions he attempted by guessing were wrong, then how many questions answered correctly to score 190 marks?

CASE STUDY-2:

Amit is planning to buy a house and the layout is given below. The design and the measurement has been made such that areas of two bedrooms is 55 sq.m more than area of kitchen.



Based on the above information, answer the following questions:

1. Form the pair of linear equations in two variables from this situation.
2. Find the length of the outer boundary of the bedroom.
3. Find the area of each bedroom and kitchen in the layout.
4. Find the area of living room in the layout.
5. Find the cost of laying tiles in kitchen at the rate of Rs. 50 per sq.m

Case study-3 :

It is common that Governments revise travel fares from time to time based on various factors such as inflation (a general increase in prices and fall in the purchasing value of money) on different types of vehicles like auto, Rickshaws, taxis, Radio cab etc. The auto charges in a city comprise of a fixed charge together with the charge for the distance covered. Study the following situations

Situation 1: In city A, for a journey of 10 km, the charge paid is Rs 75 and for a journey of 15 km, the charge paid is Rs 110.

Situation 2: In a city B, for a journey of 8km, the charge paid is Rs91 and for a journey of 14km, the charge paid is Rs 145.

Refer situation 1

1. In city A If the fixed charges of auto rickshaw be Rs x and the running charges be Rs y km/hr, the pair of linear equations representing the situation is
2. A person travels a distance of 50km. The amount he has to pay is

Refer situation 2

3. What will a person have to pay for travelling a distance of 30km?
4. Draw graph of lines representing the conditions are: (situation 2)

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HINDI

प्रश्न-1 दो विज्ञापनों का सुंदर प्रस्तुतीकरण अपनी उत्तर पुस्तिका में कीजिए।
प्रश्न-2 दो अपठित गद्यांश अपनी उत्तर पुस्तिका में कीजिए। ।
प्रश्न-3 कक्षा में पढ़ाए हुए पाठों का कार्य पूरा करके याद कीजिए ।
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SCIENCE:

Chemistry: Revise Lesson 1 and write all the chemical equations from L1 and L2 in your notebook.

Read Lesson 2 Acids, Bases and Salts

Write the Practical in your Lab Manual:

1. Properties of acids and bases and pH value
2. Reactivity of Metals
3. Properties of acetic acid

4. Cleansing action of soap

Physics: Do the assignment questions in notebook.

Revise and Do back exercise questions of Chapter 9 (LIGHT - REFLECTION and REFRACTION)

Biology: Revise Chapter 5 Life Processes

Read Lesson 13 Our Environment

Write Experiment-6,7,12,14 in the manual

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SOCIAL SCIENCE

PROJECT WORK CLASS X (2024-25)

TOPIC -CONSUMER AWARENESS- JAAGO GRAHAK JAAGO

GUIDELINES FOR SUBMITTING THE PROJECT

1. Every student has to compulsorily undertake the project on the following topic:

2. Objective: The overall objective of the project work is to help students gain an insight and pragmatic understanding of the theme and see all the Social Science disciplines from interdisciplinary perspective. *It should also help in enhancing the Life Skills of the students.

*Students are expected to apply the Social Science concepts that they have learnt over the years in order to prepare the project report. Students may collect data from different sources and use different primary and secondary resources to prepare the project. If possible, different forms of art may be integrated in the project work.

3. The distribution of marks over different aspects relating to Project Work is as follows:

a. Content accuracy, originality and analysis (2) b. Presentation and creativity (2) c. Viva Voce (1)

4. It is to be noted by students that the projects prepared should be made from eco-friendly products without incurring too much expenditure.

5. The Project Report should be handwritten by the students themselves.

6. The format of the Project file should be likewise-

COVER PAGE- On Cover Page mention the following:

Topic of the Project:

Name:
Class & Section:
Subject:
Roll No.:
Name of the School:
Session:

a. ACKNOWLEDGEMENT

Express your gratitude to those who helped you in completion of the project.

b. INDEX

S. No. Sub Topic Page no.

c. Introduction-Who is a Consumer and Responsible Consumer?

d. Consumer Exploitation

e. Forms of Consumer Exploitation

f. Consumer Rights

g. Consumer Duties

h. Consumer Movement

i. Consumer Justice

LAST PAGE- BIBLIOGRAPHY

Sources-

1. Books

2. Newspaper and Magazine

3. Online Resources

4. Interviews

5. Speeches, Presentations and Conferences

METHODOLOGY (Students can use this for collecting the data for the project)

1. Visit to shops, markets, shopping complexes etc.

2. Primary Sources: Original documents such as diaries, complain letters, grievance records, interviews,

records, eyewitness accounts, autobiographies, manuscripts, speeches etc.

3. Secondary Sources: Bibliographies, Articles from journals, magazines, newspapers, reference books,

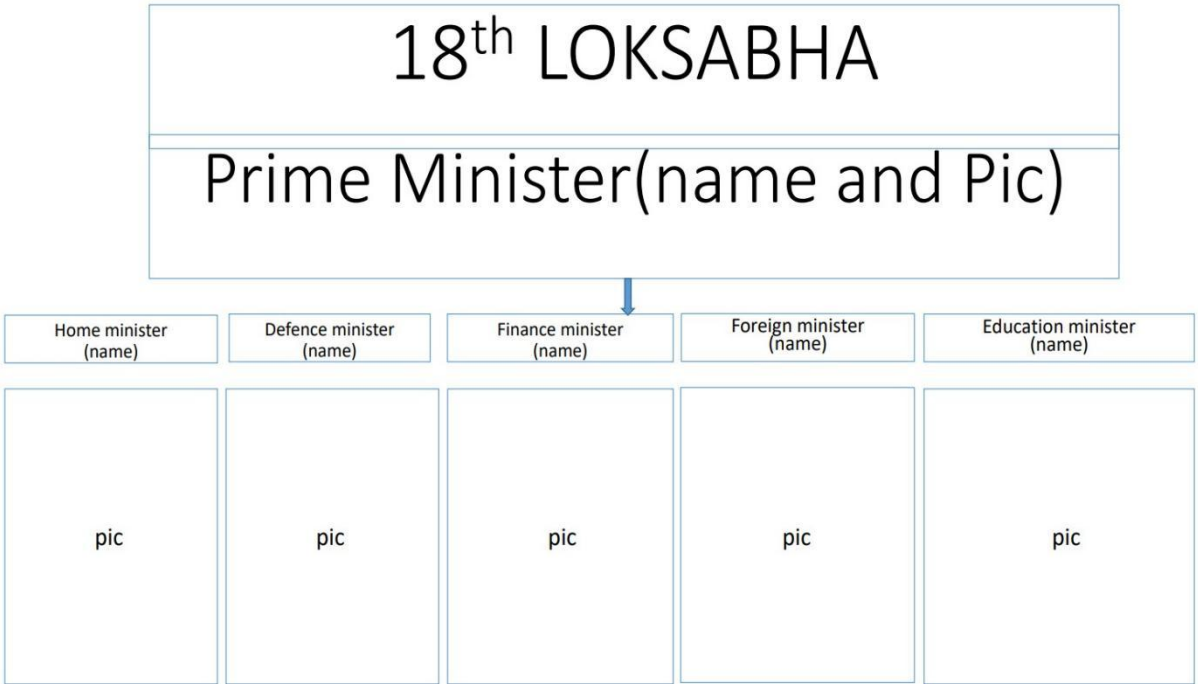
dictionaries etc.

4. Internet

5. Data collection and Validation

6. Speeches, Presentations and Conferences

Based on the Election result make a Flow Chart on a Yellow A4 Size Sheet in the provided format and paste in your copy



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ENGLISH

Create a visual narrative tracing Nelson Mandela's and Anne Frank's life journeys through a combination of carefully selected pictures and key events. Explore their experiences, challenges, and the historical context that shaped their stories in 4-5 pages each.

(NOTE: The work needs to be done in the English registers itself)

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M.SC
PROJECT

Chapter-2 Believe in god
Topic : "Power of Prayer"
R.No 1 to 21

Chapter-8 Value your Time
Topic: "Time Management"
R.No 22 to last

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ART:

1)Make a Madhubani Art on an A3 size sheet.

**Kindly note – mention your name class and roll no the backside of

the sheet and get this Madhubani art project laminated.

2) Make one table craft on the theme of Christmas.

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ARTIFICIAL INTELLIGENCE:

1 PowerPoint presentation on Neural Network.

2 Write 5 program on computer file (print and paste Input and output both) using Jupyter Notebook (Python).

1. Take temperature in Celsius from User and convert it in Fahrenheit and print it
2. Take input from user as No of items, and then take items as input from user. Create a list of items and print the list
3. X Class Computer results are out. Marks are provided in below list
   [20,40,35,79,86,94,12,89,45,65,90]
   Use conditional statements, create and print a list of grades as per below
   Marks between 0-20 - E
   Marks between 21-40 - D
   Marks between 41-60 - C
   Marks between 61-80 - B
   Marks between 81-100 - A
4. Create a tuple and print first and last number
5. Take input from user a number and print its factorial

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ROBOTICS:

DIY projects:

1. MIT app inventor projects

Go to MIT app inventor and code the following projects:-

- Ball Bounce project
- Steps Count project

2. Collect some scrap things from your home and build a robotic model out of it. Decorate it also.
3. Get 5 ideas that we can use to build projects using our Amazeheads kit and also mention its use in the real time environment. Write down the idea in a paper and also try to draw its model.

Name: _____

Human or Bot ?

Humanoid robots are those that resemble the human body. For this exercise, use the word on the pool to differentiate between robot and human abilities. Inside the illustrative example, write the words that accurately describe it.

- Ability to think
- programmed to perform
- Automatic
- Have emotions
- Consistent
- Restless
- Social
- Ability to adapt

Name: _____

Can You Describe Me?

Robots require essential components to execute their duty or function. For this task, name the following components and explain their functionality in a robot.

Name	Use

Name	Use