INTERNATIONAL INDIAN SCHOOL, DAMMAM

MIDDLE SECTION

TERM-1 EXAM WORKSHEET 2025-26

CLASS: VI **SUBJECT: MATHEMATICS**

Chapter -1

PATTERNS IN MATHEMATICS

(I) Choose the correct answer:

1. Virahanka numbers are
   a. 1, 3, 6, 10, 15…
   b. 1, 2, 3, 5, 8…
   c. 1, 8, 27, 64, 125…
   d. 1, 7, 19, 37…
2. Hexagonal numbers are _____
   a. 1, 3, 6, 10…
   b. 1, 4, 9, 16…
   c. 1, 8, 27, 64 ……..
   d. 1, 7, 19, 37…
3. If you start with the number 1 and keep adding 2, what sequence are you creating?
   a. Even numbers
   b. Prime numbers
   c. Odd numbers
   d. Square numbers
4. What sequence do we get when we start adding up Odd numbers?
   a. Squares
   b. Cubes
   c. Triangular Numbers
   d. Even Numbers
5. The missing term in the sequence 1, 3, 6,…, 15 etc…. is
   a. 25
   b. 9
   c. 10
   d. 8

(II) Assertion Reason Questions:

6. **Assertion (A) –** 15 is both a triangular number and a square number.
   Reason (R) – If dots arrangement of a number is represented in triangle as well as in square, then the number is called both triangular as well as square number and square- triangular number.
   a. Both A and R are true and R is the correct explanation of A
   b. Both A and R are true but R is not the correct explanation of A
   c. A is true but R is false
   d. A is false but R is true

7. **Assertion (A) –** The Koch snowflake becomes smoother with each iteration**.**

Reason (R) – Each iteration adds smaller and smaller triangles to the snowflake.

a. Both A and R are true and R is the correct explanation of A
b. Both A and R are true but R is not the correct explanation of A
c. A is true but R is false
d. A is false but R is true

(III) Answer the following questions:

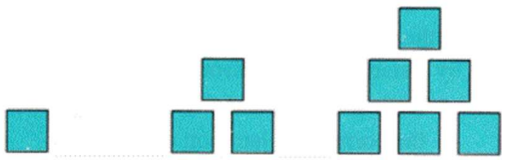
8. Which sequence do you get when you start to add two consecutive even numbers minus 1?
9. What is the 4th shape in the pattern when we start with a triangle and the number of sides increases by 1 with each shape?
10. Identify the polygon according to the number of sides.

Number of sides	Name of polygon
3	
5	
9	
10	

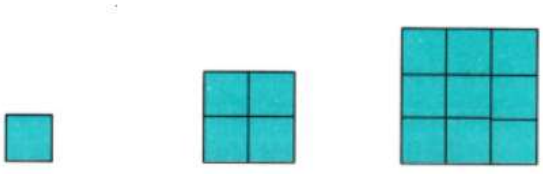
11. Create a pattern using the rule 'Add 5 to the previous number' starting with 2.
12. Imagine you are filling a jar with marbles. Each time, you add 3 more marbles than before. If you start with 2 marbles, how many marbles will you have after 5 rounds?
13. Give the pictorial representation of the number sequence 3, 6, 9, 12….

(IV) Case study Questions:

14. Rima and Diva are playing with square counters.
Rima arranges her counters as follows:



Diva arranges the counters as follows:



One of their friends, Rohan, says these are showing the number patterns.
Based on the above information, answer the following questions.
(a) What are the number patterns they are showing?
(b) If Rima's arrangement is representing the triangular numbers, then what will be her next two arrangements if she follows the same pattern?
(c) What is Diva's next arrangement with counters if she follows the same pattern?

15. A gardener is planning a flower garden. She decides to plant the flowers in rows where the number of flowers in each row follows a pattern.
Based on the above information, answer the following questions.

a) In the first row, she plants 2 flowers, in the second row 4 flowers and in the third row 6 flowers. If she continues this pattern, how many flowers will be in the seventh row?
   (i) 14
   (ii) 10
   (iii) 12
   (iv) 8

b) How many total flowers will she have planted by the time she finishes the fifth row?
   (i) 10
   (ii) 20
   (iii) 30
   (iv) 40

c) If the pattern changes after the fifth row, so that each subsequent row has one flower less than the previous row, how many flowers will be in the 10^{th} row?
   (i) 7
   (ii) 5
   (iii) 6
   (iv) 8

Chapter -2

LINES AND ANGLES

(I) Choose the correct answer:

1.How many lines can pass through two given points?

a) 3 b) 2 c) 4 d) 1

2.An angle has:

a) One vertex and one arm b) one vertex and two arms

c) two vertex and one arm d) two vertex and two arms

3. Two lines meeting at a common point are called

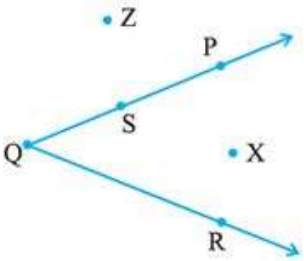
a) Parallel lines b) Perpendicular lines

c) Bisector lines d) Intersecting lines

4. A _____ indicates a definite position.

a) Ray b) point c) line d) angle

5. Point P is _____.



a) in the exterior of the angle b)on the angle

c) in the interior of the angle d)away from the angle

6. Assertion (A): A line contains a countless number of points.

Reason (R): Line extends indefinitely in both directions.

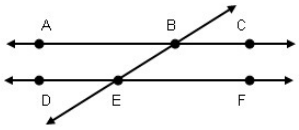
a) Both A and R are true and R is the correct explanation of A.

b) Both A and R are true but R is not the correct explanation of A.

c) A is true but R is false.

d) A is false but R is true.

7. Assertion (A):



Reason (R) :If two lines have one common point, they are called intersecting lines**.**

a) Both A and R are true and R is the correct explanation of A
b) Both A and R are true but R is not the correct explanation of A
c) A is true but R is false
d) A is false but R is true

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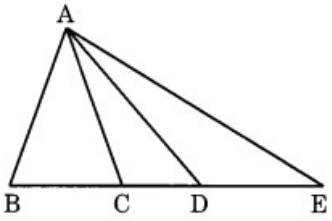
(II) ANSWER THE FOLLOWING QUESTIONS:

8. In the given figure, name all the possible triangles.

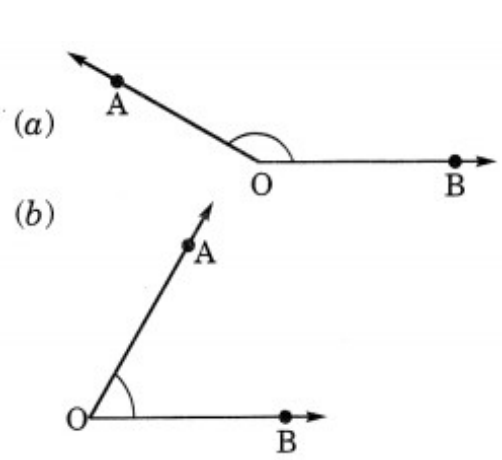


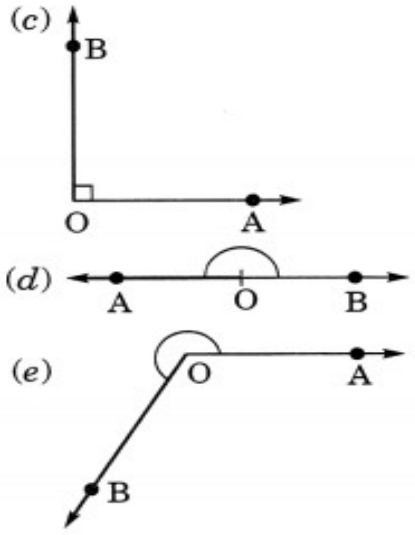
9. Draw a closed curve with points A, B and C such that,
(i) Point A lies on the curve
(ii) Point B in its interior
(iii) Point C in its exterior.

10.What is the measure of straight angle? What is complete angle?

11.Draw the rough sketch of the following:
(a) Acute angle
(b) Obtuse angle
(c) Reflex angle

12.Find the degree measures for the angles given below using protractor:





13. Draw angles with following measures:

(a) 55° (b) 85° (c) 195°(d) 150°

14. Make any figure with (a) 2 right angles (b) 2 Acute angles.

(III) Case study-based questions:

15. Riya was observing the clock in her room. At 3 o'clock, she noticed the hands formed an angle. She wondered what kind of angle it was.

(i) What angle is formed between the hour hand and minute hand at 3 o'clock?

a) Acute angle b) Right angle c) Obtuse angle d) Straight angle

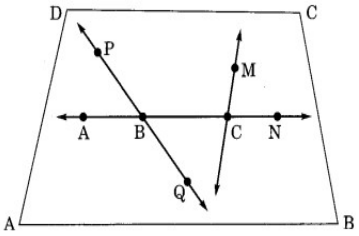
(ii) What type of angle is formed at 6 o'clock?

a) Straight angle b) Acute angle c) Right angle d) Reflex angle

(iii) If the hands of the clock form a 90° angle, what kind of angle is it?

a) Acute angle b) Right angle c) Obtuse angle d) Straight angle

16. Using the given figure, name the following:



(a) Name the line containing point M
(b) Name the line passing through four points.
(c) Write two pairs of intersecting lines.

Chapter -3

NUMBER PLAY

(I) Choose the Correct Answer:

1) If you reverse the number 123 and add it to the original number you will get a palindrome.
   a) 123 b) 321 c) 444 d) 100
2) The number 2754 would be placed between _____ on a number line.
   a) 2000 & 2500 b) 2000 & 3000 c) 1000 & 2000 d) 2800 & 3000
3) The digit '7' appears _____times in the tens place from 1 to 100.
   a) 9 b) 10 c) 12 d) 15
4) In a grid, a supercell is a number that is _____than its neighbour directly above, below, left and right.
   a) Large b) Smaller c) Both Larger and Smaller d) Equal

5) _____is called the Kaprekar Constant.

a) 6127 b) 4716 c) 6174 d) 7616

6) **Assertion (A):** 121 is a palindrome number.
Reason (R): A number is a palindrome if it remains the same when its digits are reversed.

a)Both A and R are true, and R is the correct explanation of A

b)Both A and R are true, but R is not the correct explanation of A

c)A is true, but R is false

d)A is false, but R is true

7) **Assertion (A):** Starting from any positive whole number, the Collatz process will eventually reach 1.
Reason (R): In the Collatz Conjecture, if the number is even, divide it by 2; if it's odd, multiply by 3 and add 1.

a) Both A and R are true, and R is the correct explanation of A

b) Both A and R are true, but R is not the correct explanation of A

c) A is true, but R is false

d) A is false, but R is true

8) I am a 5 digit palindrome.
I am an even number.
My 't' digit is double of my 'u' digit.
My 'h' digit is double of my 't' digit.
Who am I ?

_____

9) Digit sum 18

a) Write other numbers whose digits add up to 18.
b) What is the smallest number whose digit sum is 18?
c) What is the largest 5 digit number whose digit sum is 18?
d) How big a number can you form having the digit sum 18? Can you make an even bigger number?

(II) ANSWER THE FOLLOWING QUESTIONS:

10) Create a 4 digit number where the digit sum is 16, and the number is a palindrome. Provide the number?

11) How many rounds does the number 3524 take to reach the Kaprekar constant?

12) Write one -5- digit number and two 3-digit numbers such that their sum is 32854.

13) Check if the Collatz Conjecture holds for the starting number 75.

(III) Case study-based questions:

14. Aarav's Number Adventure

Aarav loved number puzzles. One day, he heard about a strange idea called the Collatz Conjecture. His teacher explained:

"Take any whole number. If it's even, divide it by 2. If it's odd, multiply it by 3 and add 1. Keep repeating this. The pattern will eventually reach 1 — no matter which number you start with!"

Aarav decided to try this with the number 7.

Let's follow his steps:

7 is odd → 3 × 7 + 1 = 22

22 is even → 22 ÷ 2 = 11

11 is odd → 3 × 11 + 1 = 34

34 is even → 34 ÷ 2 = 17

17 is odd → 3 × 17 + 1 = 52

52 → 26 → 13 → 40 → 20 → 10 → 5 → 16 → 8 → 4 → 2 → 1

He was amazed — even after all those steps, he finally reached 1!

a) What number did Aarav start with for the Collatz Conjecture?

b) What is the rule when the number is even in the Collatz Conjecture?

c) What is the rule when the number is odd in the Collatz Conjecture?

d) What number did Aarav reach in the end?

15. Rohan's Magical Discovery

Rohan had just learned about Indian mathematicians in his school assembly. Later that day, his math teacher introduced the class to Kaprekar's Magic Number — 6174. Fascinated, Rohan decided to try the trick himself using the number 7312.

Here's what he did:

Descending: 7321, Ascending: 1237

7321 - 1237 = 6084

8640 - 0468 = 8172

8721 - 1278 = 7443

7443 - 3447 = 3996

9963 - 3699 = 6264

6642 - 2466 = 4176

7641 - 1467 = 6174

Rohan reached 6174 in 7 steps! He was amazed that no matter what number he started with (as long as it had at least two different digits), the result was always the same.

a. What number did Rohan start with?
b. How many steps did it take Rohan to reach 6174?
c. What is the name of the special number in this trick?
d. Why can't this trick work with a number like 5555?

Chapter 4
DATA HANDLING AND PRESENTATIONS

(I) Choose the correct answer:

1. Collection of numbers to give some information is called _____ .

a. Data b. Tally marks c. Bar graph d. Pictograph

2. The presentation of data in the form of pictures is called _____ .

a. Bar graph b. Pictograph c. Tally marks d. None of these

3. The number of times an observation is repeated in a data is called _____ .

a. Frequency b. Sample c. Bar Graphs d. None of these

4. Using tally marks, which one of the following represents the number four:

a. ||| b. || c. ||||| d. ||||

5. Data obtained in the original form is called _____ .

a. Bar graph b. Pie chart c. Raw data d. Observation

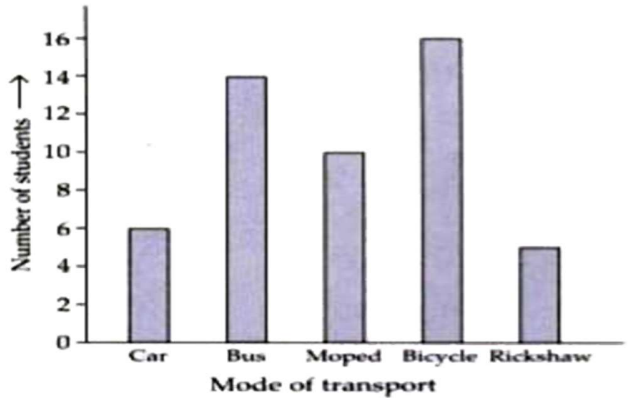
6. The representation of data with bars of uniform width is called

a. Bar graph b. Pictograph c. Tally marks d. None of these

(II) Assertion and reason:

7. **Assertion :** Raw data should be arranged in tabular form for its representation.
Reason : Representation through bar graph and pictograph is less efficient or organised.
a. Both assertion and reason are true and reason is the correct explanation of assertion.
b. Both assertion and reason are true but reason is not the correct explanation of assertion.
c. Assertion is true but reason is false.
d. Assertion is false but reason is true.

8. students from a locality use different modes of transport to go to school as shown by the bar graph given below

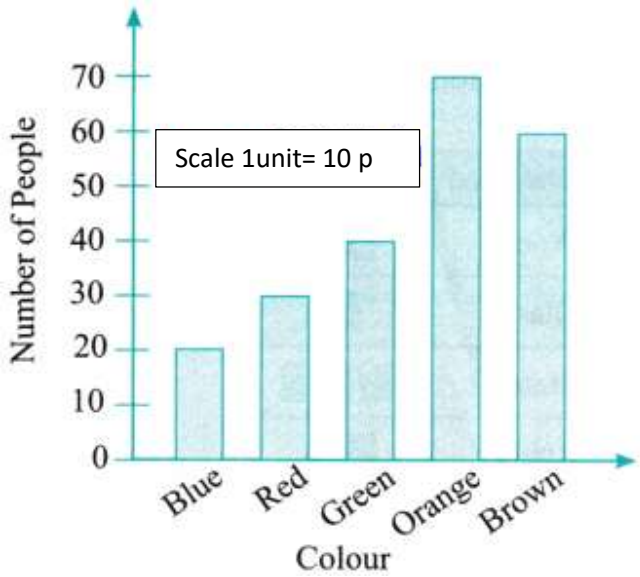


Assertion : Bicycle is used by maximum number of students.
Reason : Height of bar corresponding to bicycle is maximum. So, most students use bicycle to go to school.

a. Both assertion and reason are true and reason is the correct explanation of assertion.
b. Both assertion and reason are true but reason is not the correct explanation of assertion.
c. Assertion is true but reason is false.
d. Assertion is false but reason is true.

(III) Answer the following questions:

9. Following bar graph shows the favorite colour of people.



Read the bar graph carefully and answer the following questions:
(i) Which colour is liked by most people?
(ii) Which is the least popular colour?
(iii) How many more people like orange colour than the people who like red colour?

10. In a Mathematics test, the following marks were obtained by 40 students. Arrange these marks in a table using tally marks.

8	1	3	7	6	5	5	4	4	2
4	9	5	3	7	1	6	5	2	7
7	3	8	4	2	8	9	5	8	6
7	4	5	6	9	6	4	4	6	6

(a) Find how many students obtained marks equal to or more than 7.
(b) How many students obtained marks below 4?

11.Draw the pictograph and answer the questions given below:

Class	**VI**	**VII**	**VIII**	**IX**	**X**
No of students	40	45	35	50	25

(i) Which class has the minimum number of students on rolls?
(ii) Which class has the maximum number of students on rolls?
(iii) How many students are on roll from Classes VI to X?
(iv) How many students are on roll in Class IX and Class X?

12.The weights of 30 students of a class are given below. Prepare a frequency chart:

42 kg	42 kg	43 kg	43 kg	41 kg
40 kg	44 kg	45 kg	45 kg	42 kg
44 kg	42 kg	46 kg	48 kg	47 kg
43 kg	48 kg	47 kg	40 kg	42 kg
42 kg	45 kg	47 kg	45 kg	41 kg
48 kg	41 kg	46 kg	44 kg	46 kg

13. Draw the Bar graph of the following data. Answer the following question.

Favourite beverage	**Number of people**
Tea	21
Coffee	15
Green Tea	9
Ice Tea	12

(i)How many people like green tea?
(ii)which beverage is most consumed?

(IV) Case study:

14. Shobhit works in a shoe store. He records the shoe sizes and the number of pairs sold every day. On Tuesday, he sold 60 pairs. His record for the day is shown below.

Shoe size	Number of pairs sold
4	𝍸 ||||
5	𝍸 ||
6	𝍸 𝍸 𝍸
7	𝍸 𝍸 |
8	𝍸 𝍸 |||

Q. 1. How many pairs of size 8 were sold on Tuesday?
(a) 3
(b) 10
(c) 11
(d) 13
Q. 2. Which shoe size sold the most?
(a) Size 4
(b) Size 6
(c) Size 8
(d) Size 9

Q. 3. Shobit realised that he had not fully recorded the sale for Tuesday. How many sold pairs had he not recorded?

Q. 4. The unrecorded data was of shoe size 7. Shobit corrected his record accordingly. Which of the following statements will be true now?
(a) Shoe size 8 sold the least now
(b) Shoe size 7 sold the most now
(c) Shoe size 5 is the new mode of the data
(d) Number of shoe pairs of size 3 can be calculated

15. Ankita manages a stall at a fair. She recorded the genres of books sold on Monday and presented the data in the following table.

Genre	Number of Books Sold
Fiction	10
Non-Fiction	15
Mystery	12
Science	8
History	5

Q.1. What is the total number of books sold on Monday?
(a) 45
(b) 50
(c) 55
(d) 60
Q.2. Which genre of books sold the least on Monday?
(a) Fiction
(b) Non-Fiction
(c) History
(d) Science

Q.3. If Ankita sells 5 more mystery books on Tuesday, what will be the total number of mystery books sold?
(a) 12
(b) 15
(c) 17
(d) 20

Q.4. The price of one fiction book is ₹150. How much money did Ankita earn by selling all fiction books on Monday?
(a) ₹1,000
(b) ₹1,200
(c) ₹1,500
(d) ₹1,800

Q.5. If Ankita wants to present this data in a bar graph, how many bars will the graph contain?
(a) 3
(b) 4
(c) 5
(d) 6

Chapter-5
PRIME TIME

(I) Choose the correct answer:

1. The smallest prime number is _____.
   a) 1 b) 0 c) 4 d) 2.
2. Two numbers having only 1 as a common factor are called _____.
   a) Composite number. b) prime number. c) Co-prime number. d) twin prime number
3. How many prime numbers are there between 10 and 20?
   a) 2 b) 5 C) 4 d)6
4. The prime factorization of 48 is _____.
   a) 2x2x3x1. b) 2x2x2x2x3. c) 2x2x4x3. d) 2x2x2x6.
5. 72 is not a multiple of _____.
   a) 12 b) 8 c) 16 d) 18.

(II) Assertion and Reasoning questions:

6. **Assertion(A)**: The multiples of 6 are 6,12,18,24, 30, ...

   Reason(R): The number of multiples of a given number is infinite.
   a) Both A and R are true and R is the correct explanation of A.
   b) Both A and R is are true but R is not the correct explanation of A.
   c) A is true but R is false.
   d) A is false but R is true.

7. **Assertion(A):** 5738 is divisible by 4.
   Reason(R): A number is divisible by 4 if the number formed by the last two digit is divisible by 4.
   a) Both A and R are true and R is the correct explanation of A.
   b) Both A and R is are true but R is not the correct explanation of A.
   c) A is true but R is false.
   d) A is false but R is true.
8. **Assertion(A):** The factors of 32 are 1,2,4,8,16,32.
   Reason(R): Every factor is greater than or equal to the given number.
   a) Both A and R are true and R is the correct explanation of A.
   b) Both A and R is are true but R is not the correct explanation of A.
   c) A is true but R is false.
   d) A is false but R is true

(III) Answer the following questions:

9. Is the first number is divisible by the second? Use prime factorization?
   a) 150 and 25 b) 84 and 28 c) 224 and 16 d) 800 and 80.

10. Which of the following numbers are co-prime?
    a) 24 and 35 b) 40 and 97 c) 50 and 225.

11. The teacher asked if 37800 is divisible by all of 2, 4, 5 ,8 and 10.
Rohan checked divisibility of 37800 by only two of these numbers and declared that it was divisible by all of them. What could those two numbers be?

12. Find the remainders obtained when each of the following numbers are divided by
    (a) 2, (b) 5, (c) 10.
    96, 145, 237, 864, 1205, 9999.

13. Which of the following numbers are divisible by all of 2, 4, 5, 8 and 10:
    480, 1350, 2400, 7350, 18000.

(IV) Case study-based questions:

14. The student of class 6 has been invited to a special version of game. Math Edition. This game is designed to test only your number Knowledge.
    In the game, participant, must go through different levels where only Players who known about prime numbers, composite numbers, factors and multiple can move forward.
    i. Identify prime numbers- you walk into a tunnel with 10 glowing stones, each with a number. The task is that you have to step only on the prime numbers which of the following stones will you step on? Numbers on the stones are 11,15,23,28,31,33,37,40,43,50.

ii. The composite trap - you reach a bridge made of 12 tiles. Each tile has a number. The task is that you have to step only on tiles with composite numbers to cross safely. Which of the following tiles will you step on? Numbers on tiles are 4,7,9,13,15,21,23,25,29,33,35.

iii. The factor Challenge – You enter a room with 8 locked doors, each marked with a number. The task is choosing doors whose numbers are factors of 48 to unlock them. Which of the following doors numbers will you chose? Door numbers are 2,5,6,11,16,20,18,48.

iv. Multiple Maze – You are maze with multiple paths. Each path shows a number the task is to follow path with number that multiple of 8 to find the exit and win the game. Which if the following path will you chose – 14,16,24,32,33,35,40.

15. Avni was celebrating her 11th birthday with her friends at home. She prepared a fun game involving lucky numbers and surprise gifts. She made a box with 20 chits, each chit having a 3 -digit.

The rules of the game are –

i. If the number on chit is divisible by 2, the player gets a chocolate.

ii. If the number on chit is divisible by 5, they get a pen.

iii. If the number on chit us divisible by 10, they get both a chocolate and a pen.

iv. If the number on chit is divisible by 4, they win a sticker pack.

Below is a list of numbers picked by some of the friends –

Friend	Number on Chit
Riya	840
Aryan	125
Meenu	456
Kabir	720
Shreyas	109
Tanu	460
Tara	375

i. Who all received a chocolate?

ii. Who all received a pen?

iii. Who won both chocolate and pen?

iv. Who won a sticker pack?

16.In a school library, there are 780 books of English and 364 books of science. Ms. Maya the librarian of the school wants to store these books in shelves such that each shelf should have the same number of each subject.

i. What is the prime factorization of 780 and 364?

ii. What should be the minimum number of books in each shelf?

iii. How many factors are common in 780 and 364?

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