Grade: 6

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HYE Revision Worksheet

Chapter 1: Patterns in Mathematics

1) The sum of the next two terms of the sequence 1, 3, 9, 27, 81, ..., is _____.

a) 729 b) 792 c) 972 d) 927

2) Tenth term of the sequence by adding 1 to each term of the sequence of odd numbers, is _____.

a) 10 b) 20 c) 22 d) 18

3) A number which is both a triangular number and a square number, is _____.

a) 25 b) 16 c) 36 d) 9

4) The fifth term of the sequence of hexagonal numbers is _____.

a) 37 b) 64 c) 52 d) 61

5) A polygon having 10 sides is called _____.

a) octagon b) nonagon c) decagon d) heptagon

6) The sum of first 20 odd numbers is given by _____

a) 2 x 20 b) 20 x 20 c) 20 + 20 d) 20 x 10

7) The sum 1 + 2 + 3 + ... + 49 + 50 + 49 + ... + 3 + 2 + 1 equals

a) 100 b) 1000 c) 2500 d) 5000

Assertion & Reasoning:

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

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

c) A is true but R is false.

d) A is false but R is Ture.

8) **Assertion (A):** 21 is both a triangular number as well as square number.

Reason (R): If dot 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 or square-triangular number.

9) **Assertion (A):** The next term in the sequence 2, 3, 5, 9, 17, _____ is 33.
Reason (R): The number obtained by "One more than power of 2" forms a number sequence.

10) Count the number of sides in each shape in the sequence of Regular Polygons. Which number sequence do you get?

11) Draw the following pictures.
   a) Regular polygon - Nonagon
   b) Complete graph – K5
   c) Stacked square – 3rd picture
   d) Stacked triangle – 4th picture

12) A gardener plants flowers in rows of 2, 4, 6, 8 and so on. How many flowers will there be in the 8th row?

13) 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?

14) Which sequence do you get when you start to add two consecutive even numbers minus 1?

15) **Case Study:** 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 7th row?
   b) How many total flowers will she have planted by the time she finishes the 5th row?
   c) If the pattern changes after the 5th row, so that each subsequent row has one less flower than the previous row, how many flowers will be in the 10th row?

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Chapter 3: Number Play

1) The supercell in the given table is

34	94	86	56	43	20

a) 86 b) 43 c) 94 d) 56

2) Which of the following is a palindromic number?

a) 848 b) 123 c) 401 d) 236

3) Which of the following is a kaprekar constant?

a) 4176 b) 7614 c) 6174 d) 1476

4) Which of the following clock timing forms a palindrome?

a) 10:01 b) 11:21 c) 12:51 d) 10:22

5) Three students write numbers as described below.

Student 1: (Greatest 4-digit number + 1) – (Greatest 3-digit number + 1).

Student 2: (Smallest 5-digit number – Smallest 4-digit number)

Student 3: (Greatest 4-digit number – Greatest 3-digit number)

Based on the information, which statement is correct?

a) All three students have written the same number.

b) All three students have written three different numbers.

c) Student 1 and Student 2 have written the same number.

d) Student 1 and Student 3 have written the same number.

Assertion & Reasoning:

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

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

c) A is true but R is false.

d) A is false but R is Ture.

6) **Assertion (A):** The number 12345 is palindrome.

Reason (R): A number is called palindrome if it reads the same forwards and backwards.

7) **Assertion (A):** The number 6174 is known as Kaprekar's constant.

Reason (R): Kaprekar's constant is attained through specific iterative process involving subtraction and rearrangement of digits.

8) How many numbers are there between 10 and 20 in the pattern increasing by 2?

9) If you start with 7, then what is the result of the Collatz sequence?

10) Use the numbers 50000, 800, 500, 300 and 1200 to form the number 49800.

11) Apply the kaprekar routine to the number 1225, show each step and verify if the routine leads to Kaprekar! Constant.

12) What is the sum of the smallest and largest four-digit palindrome? What is their difference?

13) **Case Study:** A teacher shows the students some numbers on the number line. She asks the students to identify the pattern and predict the numbers on the number line.

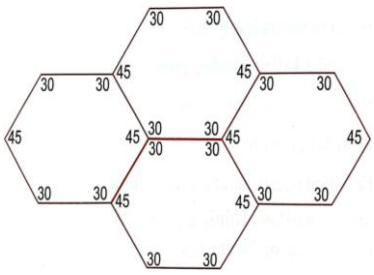
Based on the above information, answer the following questions.

a) What is the pattern in the given number line?

b) What is the 6^{th} number on the number line?

c) Write down all the numbers on the number line.

14) Find the sum of the numbers in number pattern in the figure.



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Chapter 4: Data Handling & Presentation

1) The choices of sweets of 10 students in a batch are as follows
Jalebi, Kaju Katli, Kalakand, Kaju Katli, Kheer, Barfi, Rasgulla, Kaju Katli, Kheer, Kaju Katli. The sweet preferred by most of the students is _____.

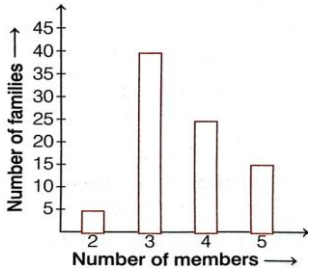
a) Jalebi b) Rasgulla c) Kaju Katli d) Kheer

2) If 🍉🍉🍉🍉🍉 stands for 40, how much does 🍉 stand for?

a) 5 b) 8 c) 6 d) 16

3)

The following bar graph shows the number of members in each family of a colony. The number of families having 3 members is ___.



a) 25 b) 30 c) 35 d) 40

Assertion & Reasoning:

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

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

c) A is true but R is false.

d) A is false but R is Ture.

4) **Assertion (A):** Marks obtained by students in Math test out of 20 are 10, 15, 19, 17, 5, 8, 12. So, the maximum marks in the test obtained by the students is 19.
Reason (R): The tally marks 𝍸 𝍸 represent 10.

5) **Assertion (A):** The sale of balls on different days of the week is shown below.

Days	Number of Balls (⦻ = 5 Balls)
Monday	⦻ ⦻ ⦻
Tuesday	⦻ ⦻ ⦻ ⦻
Wednesday	⦻ ⦻
Thursday	⦻ ⦻ ⦻

The balls sold on Thursday are 15.

Reason (R): A pictograph represents data through symbols or pictures.

6) The following are the weight (in kg) of 20 students of a class 25, 16, 17, 15, 23, 10, 9, 15, 16, 17, 15, 16, 23, 25, 16, 15, 23, 9, 10, 16. Prepare a table using tally marks for the given data.

7) Pooja collected data on the number of tickets sold at the Bhopal railway station for a few different cities of Madhya Pradesh over a two-hour period.

City	Vidisha	Jabalpur	Seoni	Indore	Sagar
No. of tickets	24	20	16	28	16

She used this data and prepared a bar graph on the board to discuss the data with her students, but someone erased a portion of the graph.

a) Write the number of tickets sold for Vidisha above the bar.
b) Write the number of tickets sold for Jabalpur above the bar.
c) The bar for Vidisha is 6-unit lengths and the bar for Jabalpur is 5-unit lengths. What is the scale for this graph?
d) Draw the correct bar for Sagar.
e) Add the scale of the bar graph by placing the correct numbers on the vertical axis.
f) Are the bars for Seoni and Indore correct in this graph? If not, draw the correct bar(s).

8) One day Mr. Rahul noted the data on how many production of rice by a country during five consecutive years. Data is given below.

Years	2005	2006	2007	2008	2009
Production of rice by a country (in million tons)	50	40	70	50	60

a) Draw a bar graph for above given data.
b) Which year production of rice was maximum?

9) The following pictograph depicts the information about the areas in sq km (to nearest hundred) of some districts of Chhattisgarh state.

District	Area (in km^2) ◍ = 1000 sq km
Raigarh	◍◍◍◍◍◍◔
Rajnandgaon	◍◍◍◍◍◍◍
Koria	◍◍◍◍◍◍
Mahasamund	◍◍◍◍◍
Jashpur	◍◍◍◍◍◍◔

a) What is the area of Koria district?

b) Which district has small area?

c) Which district has large area?

d) Which two districts have the same area?

e) How many districts have area more than 5000 sq. km?

10) Fill in the blanks in the following table, which represents shirt size of 40 students at a school.

Shirt size	Tally marks	Number of students
30	|||	3
32	𝍸	—
34	—	8
36	𝍸 ||	—
38	—	10
40	—	7

11) **Case Study:** Shobit works for 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 IIII
5	𝍸 II
6	𝍸 𝍸 𝍸
7	𝍸 𝍸 I
8	𝍸 𝍸 III

a) How many pairs of size 8 were sold on Tuesday?

b) Which shoe size is sold the most?

c) Shobit realized that he had not fully recorded the sale for Tuesday. How many sold pairs had he not recorded?

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Chapter 5: Prime Time

1) Which of the following number is the product of exactly three distinct prime numbers?

a) 20 b) 165 c) 45 d) 147

2) Sum of the number of primes between 16 to 80 and 90 to 100 is _____.

a) 20 b) 18 c) 17 d) 16

3) Which of the following pair is not coprime?

a) 11, 12 b) 73, 74 c) 84, 94 d) 97, 98

4) In which of the following pair, the first number is divisible by the second number? Use prime factorization.

a) 75 and 30 b) 90 and 60 c) 125 and 75 d) 75 and 15

5) The number of common prime factors of 75, 60, 105 is _____.

a) 2 b) 3 c) 4 d) 5

6) Which number is divisible by 8?

a) 1244 b) 1300 c) 1456 d) 1700

Assertion & Reasoning:

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

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

c) A is true but R is false.

d) A is false but R is Ture.

7) **Assertion (A):** The number 9 and 25 are co-prime.

Reason (R): A number is said to be prime, if it has only two factors 1 and the number itself.

8) **Assertion (A):** The common factors of two numbers can never be greater than the smaller number.

Reason (R): Factors are numbers that divide another number completely.

9) Find a 4-digit odd number using each of digits 1, 2, 4 and 5 only once such that when the first and last digits are interchanged, it is divisible by 4.

10) There were 3 farmers Jagat, Ramlal and Haria. If all three step off together, their step measure 80cm, 85cm and 90cm respectively. What is the minimum distance each should walk so that all can cover the same distance in complete steps?

11) Show the common multiples of 3 and 4 in Venn diagram.

12) Write all pairs of twin primes between 50 and 100.

13) Write two perfect numbers with steps.

14) What jump size can reach both 15 and 30? There are multiple jump sizes possible. Try to find them all.

15) **Case Study:** A photographer is hired to take group photographs of students in each class in a school. He arranges the students along with teachers in rows for the photograph. His arrangement has

- ❖ Atmost 50 people.
- ❖ An equal number of people in each row.

A row consists of a minimum of 3 people and a maximum of 8 people.

a) There are 35 people (students and teachers) in a class for a group photograph. What are the possible arrangements for them?

b) How did the students of class 7 which are 30 in number want to take a photograph along with 2 teachers. Which of the following is the possible arrangement for them?

i) 2 rows with 16 students in each.

ii) 4 rows with 8 students/teachers in each.

iii) 5 rows with 6 students in each and 1 row for teachers.

c) The photographer arranged some of the students in 6 rows. What can be the maximum number of students in the photograph?