MRA DAV Public School Solan

Holiday Home Work: Mathematics
Class – IX (promoted to X)

Number System

1 Define the following terms:
Natural number, Whole number, Integers, Rational number , Irrational numbers, Real number , even number , Odd number , Prime number , Composite number , Twin prime, Relatively prime, Co prime number , HCF, LCM.

2 Give example of two irrational number such that their
i) Sum ii) Difference
iii) Product iv) Quotient, Can be rational and irrational.

3 Find the HCF and LCM of following numbers
i) 30, 20, 75 ii) 125, 275, ,625 iii) 150, 260 iv) a^3b^2c, ab^3c

4 Express the following as a product of prime.
i) 3125 ii) 5005 iii) 275

5 Write total number of prime factor of the product 8^{20}x 15^{24} x 21^{15}

6 Express in p/q form $0.\bar{5}+0.\bar{3}+0.\bar{1}$

7 HCF of two numbers is 60, their LCM is 138600, one of the number is 2520. Find the other number.

8 What is the smallest number that, when divided by the 35, 56 and 91 leaves the remainder of 7 each case?

9 The traffic lights at three different road – crossings change after every 48 seconds, 72 seconds and 108 seconds. If they change simultaneously at 7 a.m. after what time will they change again simultaneously?

10 The length, breadth and height of a room are 8 m 50 cm, 6 m 25 cm and 4 m 75 cm respectively. Find the length of the longest rod that can measure the dimensions of the room exactly.

11 Find the smallest number that is divisible by first 10 natural numbers.

Algebra

1 Find the value of k, if x=2 is zero of $x^3-5x^2-3kx+2$

2 Find the value of a and b if x=2, -2 are zeroes of $x^3-3x^2-2ax+b$

3 What must be subtracted from $8x^4 + 14x^3 - 2x^2 + 7x - 8$ so that the resulting polynomial is exactly divisible by $4x^2 + 3x - 2$?

4 Divide $2x^4-5x^3+2x^2-x+3$ by x^2-3x+2, find quotient and remainder and verify division algorithms.

5 $x-\sqrt{5}$ is the factor of the $x^3-3\sqrt{5}x^2+13k-3\sqrt{5}$, find the value of k.

6 Find the ratio of the area of two triangles formed by lines $3x+y-12=0$, $x-3y+6=0$, with x- axis and y-axis.

7 Draw the graph of the equation; $2x-3y+6=0$, $2x+3y-18=0$ and $y-2=0$ on the same graph find the area of the triangle so obtained.

8 Express the following situation algebraically in two variable.

i) Two pens and one eraser cost Rs. 35 and 3 pencil and four erasers cost Rs. 65.

ii) If twice the age of son is added to age of father, the sum is 56. But if twice the age of the father is added to the age of son, the sum is 82.

iii) If 2 is added to the numerator and denominator it becomes 9/10 and if 3 is subtracted from the numerator and denominator it become 4/5. Find the fractions.

iv) In a two digit number. The units digit is thrice the tens digit. If 36 is added to the number, the digits interchange their place. Find the number.

v) The sum of two number is 14 and their difference is 2

Geometry

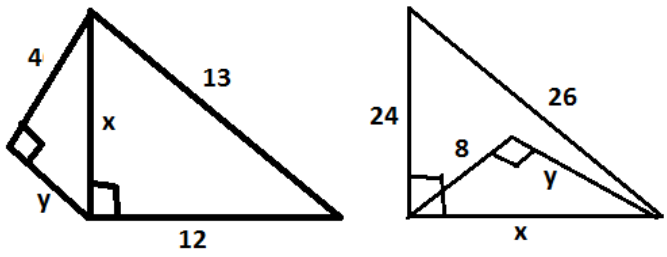
1 A ladder 13 m long is placed on the ground in such a way that it touches the top of a vertical wall 12 m high. Find the distance of the foot of the ladder from the bottom of the wall.

2 The height of two building is 34 m and 29 m respectively. If the distance between the two building is 12 m, find the distance between their tops.

3 In a ΔABC, angle $C=90^0$, $BC= AC=3\sqrt{2}$, Find AB.

4 In a right angle triangle hypotenuse is of length p cm and one side of length q cm. If $p-q=1$ find the length of third side.

5 Find the value of x and y



Statistics

1 If mean of the data is 18 find the missing frequency

X	12	14	16	18	20	22	24
f	3	6	9	13	X	5	4

2 If mean of the data is 50 find the missing frequency

x	10	30	50	70	90	Total
f	17	X	32	Y	19	120

3 Find the mean of first n i) odd number ii) even number iii) natural number

4 M being the mean of $X_1, X_2, X_3, X_4, X_5, X_6$, find the value of $(X_1-M)+(X_2-M)+(X_3-M)+(X_4-M)+(X_5-M)+(X_6-M)$.

5 If mean of 4, 6, 8, 10, *x*, 14, 16 is 10 then find the value of '*x*'

6 If mode of 4, 6, 8, 10, 2*x+1*, 11, 11, 10 is 11 then find the value of '*x*'

7 The mean of 'n' terms is $\bar{x}$. If first term is increased by 1, second term by 2 and so on, then find the new mean.

Holiday Home Work: English

Class – IX (promoted to X)

- Make a collage based on any two interesting events during the holidays.
- Interdisciplinary with Disaster Management: Collect information on 'Disaster preparedness' and prepare a poster on the same.
- Interdisciplinary with Science: Design your own newspaper with important news/events based on the latest discoveries and innovations from the field of science and technology. Your Newspaper may include:
  1. Editorial 2. Report
  3. Article 4. Advertisements

  Give you newspaper an interesting name
- "Books are the quietest and most constant of friends; they are the most accessible and wisest of counselors, and the most patient of teachers".
  Read any one book of your choice and write a book review .You book review must include following points:
  About the author
  Summary
  Character sketches of important characters
  Setting, plot and conflict
  Values/ moral
  My opinion
  Dream vacation: Where do you think you would most like to go on a vacation? Pick a spot, describe it, and explain why you would want to go there.