RAMAGYA SCHOOL, NOIDA
WORKHEET, 2017-2018
SUBJECT: MATHEMATICS

CLASS: X **MONTH: MAY**

Concept based questions

Q1. What types of lines do the pair of equations $x = c \; and \; y = c$ represent graphically?

Q2. Write the pair of linear equations which have solutions $x = 2, y = -2$.

Q3. Find whether this pair of linear equations is consistent

$$x - 2y = 6, \qquad 3x - 6y = 0.$$

Q4. For what value of k will pair of equations have no solution?

$$3x + y = 1\,, \qquad (2k - 1)x + (k - 1)y = 2k + 1$$

Q5. For what value of k will the following equations have infinitely many solutions?

$$2x - 3y = 7, \qquad (k + 1)\,x + \,(1 - 2k)\,y = 5k - 4$$

Q6. If we have two variables x and y when $x = a \; and \; y = b$ is the solution of equations $x - y = 2 \; and \; x + y = 4$, then what will be the value of a and b

Value based questions

Q7. Draw the graph of $(2x + y = 6) and \; (2x - y + 2 = 0)$. Shade the region bounded by these lines and x axis. Find the area of the shaded region

Q8. When you add two numbers and the number obtained by reversing the order of its digits is 165. If the both numbers differ by three, find the number

Q9. The larger of two supplementary angles exceeds thrice the smaller by 20 degrees. Find them

Q10. The sum of two children is 'a'. The age of the father is twice the 'a'. After twenty years, his age will be equal to the addition of the ages of his children. Find the age of father.

Q11. A number say z is exactly the four times the sum of its digits and twice the product of the digits. Find the numbers.

Application based questions

Q12. 6 men and 10 women can finish making pots in 8 days, while the 4 men and 6 women can finish it in 12 days. Find the time taken by the one man alone from that of one woman alone to finish the work.

Q13. A boat covers 14 kms in upstream and 20 kms downstream in 7 hours. Also it covers 22 kms upstream and 34 kms downstream in 10 hours. Find the speed of the boat in still water and of that the stream.

Q14. There are two points on a highway A,B. They are 70 km apart. An auto starts from A and another auto starts from B simultaneously. If they travel in the same direction, they meet in 7 hours, but if they travel towards each other they meet in 1 hour. Find how fast the two autos are.

Q15. A diver rowing at the rate of 5 km/h in still water takes double the time in going 40 km upstream as in going 40 km downstream. Find the speed of the stream.

Q16. A man travels 600km apart by train and partly by car. It takes 8 hours and 40 minutes if he travels 320 km by train and rest by car. It would take 30 minutes more if he travels 200 km by train and the rest by the car/. Find the spe ed of the train and by car separately.

HOTS

Q17. A number is a two digit number which is three times more than 4 times the sum of the digits. If 18 is added to the number, the digits gets opposite. Represent geometrically

Q18. If $ax + by = a^2 - b^2 \; and \; bx + ay = 0$, then find the value of $(x + y)$.

Q19. The sum of a two digit number and the number formed by interchanging its digits is 110. If 10 is subtracted from the first number, the new number is 4 more than 5 times the sum of the digits in the first number. Find the first number.

Q20. Solve the following pair of equations for $x \; and \; y$. (By elimination method)

$$\frac{a^2}{x} - \frac{b^2}{y} = 0$$

$$\frac{a^2 b}{x} + \frac{b^2 a}{y} = a + b; x \neq 0, y \neq 0$$

Q21. For what value of p and q, will the following pair of linear equations have infinitely many solutions?

$$4x + 5y = 2$$

$$(2p + 7q)x + (p + 8q)y = 2q - p + 1$$
