INDIAN SCHOOL AL WADI AL KABIR

DEPT. OF MATHEMATICS 2017 - 2018

HOLIDAY HOME WORK (CBSE QUESTIONS)

CLASS X **Date: 21-05-2017**

1. Find the zeroes of the polynomial x^2-4 and show that its zeroes are numerically equal but opposite in sign.

2. Check whether 6^n can end with the digit zero for any natural number 'n'.

3. Find a cubic polynomial whose zeroes are 4, -3 and -1. $x^3-13x-12$

4. Following is the data regarding the number of plants in 20 houses in a locality. Find the mean number of plants per house : 8.1

Number of plants	0 – 2	2 – 4	4 – 6	6 – 8	8 – 10	10 – 12	12 – 14
Number of houses	1	2	1	5	6	2	3

5. If α and β are zeroes of the polynomial $p(x)=2x^2-5x+7$ find a polynomial whose zeroes are $2\alpha+3$ and $2\beta+3$. $x^2-11x+38$

6. On a morning walk, three persons step off together and their steps measure 40 cm, 42 cm and 45 cm respectively. What is the minimum distance each should walk so that each can cover the same distance in complete steps ? 2520 cm

7. Prove that the square of any positive integer is of the form 4m or 4m+1 for some integer 'm'.

8. Find the zeroes of the quadratic polynomial $5x^2+8x-4$ and verify the relationship between the zeroes and the coefficients of the polynomial. -2 and $\frac{2}{5}$

9. Solve for x and y : $x=5$, $y=7$

$$\frac{x+1}{2}-\frac{y+4}{11}=2$$
$$\frac{x+3}{2}+\frac{2y+3}{17}=5$$

10. $x=2$, $y=3$

$$\frac{2}{x}+\frac{3}{y}=2$$
$$\frac{1}{x}-\frac{1}{2y}=\frac{1}{3},\ x\neq 0,\ y\neq 0$$

11. Find the median for the following distribution : 25.

Classes	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50
Frequencies	6	10	12	8	8

12. Prove that $\sqrt{5}$ is irrational and hence show that $3+\sqrt{5}$ is also an irrational number.

13. Represent the following pair of linear equations graphically : (7, 0)
$x+y=7$ (4, 0)
$5x+2y=20$
From the graph, find the points where the lines represented by these equations intersect x-axis.

14. Find all the zeroes of the polynomial $f(x)=2x^4-3x^3-9x^2+15x-5$ if two of its zeroes are $\sqrt{5}$ and $-\sqrt{5}$. 1 and $\frac{1}{2}$

15. Show that any positive odd integer is of the form $4q+1$ or $4q+3$, where 'q' is some integer.

16. Find the quotient and remainder on dividing $p(x)$ by $g(x)$ $2x+5$
$p(x)=4x^3+8x^2+8x+7$; $g(x)=2x^2-x+1$ $11x+2$

17. On dividing a polynomial $p(x)$ by $3x+1$, the quotient is $2x-3$ and the remainder is -2. Find $p(x)$. $6x^2-7x-5$

18. Write the relationship connecting three measures of central tendencies. Hence find the median of the given data if mode is 24.5 and mean is 29.75. 28

19. If α and β are zeroes of the polynomial $p(x)=2x^2+11x+5$, find the value of $\frac{1}{\alpha}+\frac{1}{\beta}-2\alpha\beta$ $-\frac{36}{5}$

20. Prove that $\sqrt{3}$ is irrational.

21. Find the values of 'a' and 'b' for which the following pair of linear equations has infinitely many solutions. $a=5$ $b=3$
$2x+y-5=0$, $(a+b)x+(5a-7b)y-20=0$

22. Solve for x and y : $152x-378y=-74$ $x=2y=1$
$-378x+152y=-604$

23. In a bag containing red and white balls, half the number of white balls is equal to one - third the number of red balls. Thrice the total number of balls exceeds seven times the number of white balls by 6. How many balls of each colour does the bag contain ? 18
12

24. The following distribution gives the daily income of 50 workers of a factory : Rs. 345

Daily income (in Rs)	200 – 250	250 – 300	300 – 350	350 – 400	400 – 450	450 – 500
Number of workers	10	5	11	8	6	10

Convert the distribution to a less than type cumulative frequency distribution and draw its ogive. Hence obtain the median daily income.

25. obtain all other zeroes of the polynomial $3x^4+6x^3-2x^2-10x-5$, if two of its zeroes are $\sqrt{\frac{5}{3}}$ and $-\sqrt{\frac{5}{3}}$ -1 and -1

**Submission Date: 07 /08 /2017