



INDIAN SCHOOL AL WADI AL KABIR
WORKSHEET- MATHEMATICS (CBSE Questions)
HOLIDAY HOMEWORK –CLASS X **Date: 06-06-16**

- 1 Check whether 12^n can end with the digit 0 for any natural number n. 2
- 2 What must be added to the polynomial $3x^4 + 5x^3 - 7x^2 + 5x + 3$ so that the resulting polynomial is exactly divisible by $x^2 + 3x + 1$. 2
- 3 Using the relationship connecting the three measures of central tendency, find the mean of the data which has mode 35 and median 28. 2
- 4 Find the difference of the upper limit of the median class and the lower limit of the modal class of the following data. 2

| Class | Frequency |
|-----------|-----------|
| 65 - 85 | 4 |
| 85 - 105 | 5 |
| 105 - 125 | 13 |
| 125 - 145 | 20 |
| 145 - 165 | 14 |
| 165 - 185 | 7 |
| 185 - 205 | 5 |

- 5 Following is the data regarding the number of plants in 20 houses in a locality. Find the mean number of plants per house : 2

| | | | | | | | |
|------------------|-------|-------|-------|-------|--------|---------|---------|
| 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 |

- 6 The following are the ages of 300 patients getting medical treatment in a hospital on a particular day : 2

| | | | | | | |
|--------------------|---------|---------|---------|---------|---------|---------|
| Age (in years) | 10 - 20 | 20 - 30 | 30 - 40 | 40 - 50 | 50 - 60 | 60 - 70 |
| Number of patients | 60 | 42 | 55 | 70 | 53 | 20 |

Form "less than type" cumulative frequency distribution.

- 7 Find the quadratic polynomial whose zeroes are in the ratio 2 : 3 and their sum is 15. 3
- 8 Show that the square of an odd positive integer is either of the form $6m + 1$ or $6m + 3$ for some integer m. 3
- 9 Find the HCF of 456 and 120 by prime factorisation method and hence find their LCM. 3

10 If α and β are zeroes of $3x^2 - x - 4$ find the value of $\alpha^4 \beta^3 + \alpha^3 \beta^4$ 3

11 Solve for x and y : 3
 $x + y = a + b$
 $ax + by = a^2 + b^2$

12 For what value of a and b the pair of linear equations has coincident lines on the graphical representation. 3
 $2x - y = 5$
 $(a - 2b)x - (a + b)y = 15$

13 If the mode of the given data is 340, find the missing frequency x for the following data : 3

| Classes | Frequency |
|-----------|-----------|
| 0 - 100 | 8 |
| 100 - 200 | 12 |
| 200 - 300 | x |
| 300 - 400 | 20 |
| 400 - 500 | 14 |
| 500 - 600 | 7 |

14 The mean of the following frequency distribution is 53. But the frequencies f_1 and f_2 in the classes 20 - 40 and 60 - 80 are missing. Find the missing frequencies : 3

| Classes | 0 - 20 | 20 - 40 | 40 - 60 | 60 - 80 | 80 - 100 | Total |
|-------------|--------|---------|---------|---------|----------|-------|
| Frequencies | 15 | f_1 | 21 | f_2 | 17 | 100 |

15 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 $-\sqrt{5}$. 4

16 Divya has pens and pencils which are 60 in number. If she has 25 more pens and 5 less pencils, then the number of pens become three times the number of pencils. Find the original number of each. 4

17 Solve the following pair of linear equations graphically : 4
 $x - y = 1$
 $2x + y = 8$
 Also find the co-ordinates of the points where the lines, represented by the above equation, intersect y - axis.

18 The following distribution gives the daily earning of 50 workers of a factory : 4

| Daily earning (in Rs.) | 100 - 120 | 120 - 140 | 140 - 160 | 160 - 180 | 180 - 200 |
|------------------------|-----------|-----------|-----------|-----------|-----------|
| Number of workers | 12 | 14 | 8 | 6 | 10 |

Change the above distribution to more than type distribution and draw its ogive. Hence find its median.

- 19 If the median of the distribution given below is 27. Find the values of x and y . 4

| Class | Frequency |
|---------|-----------|
| 0 – 10 | 5 |
| 10 – 20 | x |
| 20 – 30 | 20 |
| 30 – 40 | 14 |
| 40 – 50 | y |
| 50 – 60 | 8 |
| Total | 68 |

- 20 Amit bought two pencils and three chocolates for ₹ 11 and Sumeet bought one pencil two chocolates for ₹ 7. Represent this situation in the form of a pair of linear equations. Find the price of one pencil and that of one chocolate graphically. 4

ANSWERS

1 $(12)^n$ does not end with the digit¹¹ $x = a$

$$y = b$$

2 $-(3x + 1)$

12 $a = 4, b = -1$

3 Mean = 24.5

13 $x = 16$

4 Difference = 20

14 $f_1 = 18$

$$f_2 = 29$$

5 Mean no. of plants per house = 8¹⁵ $\sqrt{5}, -\sqrt{5}, 1$ and $\frac{1}{2}$

6

| Classes | frequency |
|--------------|-----------|
| less than 20 | 60 |
| less than 30 | 102 |
| less than 40 | 157 |
| less than 50 | 227 |
| less than 60 | 280 |
| less than 70 | 300 |

16 No. of pens = 35
No. of pencils = 25.

7 $x^2 - 15x + 54$

17 $(0, -1)$ $(0, 8)$

9 24,2280

18 median = 138

10
$$\begin{array}{r} -64 \\ \hline 81 \end{array}$$

19 $x = 15$

$$y = 6$$

20 Cost of one pencil = ₹ 1
Cost of Chocolate
= ₹ 3