



INDIAN SCHOOL AL WADI AL KABIR

Holiday Assignment (2019 - 2020)

Class: X

Sub: MATHEMATICS

Submission Date

Date : 23-05-2019

8th Aug 2019

Instructions: (i) All questions are compulsory

(ii) Please write down the serial number of the question before attempting it.

- The prime factor of $2 \times 7 \times 11 \times 17 \times 23 + 23$ is :
(A) 7 (B) 11 (C) 17 (D) 23
- If the sum of the zeroes of the polynomial $p(x) = (k^2 - 14)x^2 - 2x - 12$ is 1, then k takes the value(s) :
(A) $\sqrt{14}$ (B) -14 (C) 2 (D) ± 4
- $\triangle ABC \sim \triangle DEF$. If $AB = 4$ cm, $BC = 3.5$ cm, $CA = 2.5$ cm and $DF = 7.5$ cm, then the perimeter of $\triangle DEF$ is :
(A) 10 cm (B) 14 cm (C) 30 cm (D) 25 cm
- The area bounded by the line $x + y = 10$ and both the Co-ordinate axes is :
(A) 100 cm^2 (B) 50 cm^2 (C) 200 cm^2 (D) 25 cm^2
- The number $3^{13} - 3^{10}$ is divisible by :
(A) 3, 13, 5 (B) 3, 10 (C) 2, 3, 13 (D) 2, 3, 10

6. Consider the following distribution :

Marks obtained	0 or more	10 or more	20 or more	30 or more	40 or more	50 or more
Number of students	63	58	55	51	48	42

The frequency of the class 30 - 40 is :

- (A) 3 (B) 4 (C) 48 (D) 51
- If two positive numbers a and b are written as $a = x^5y^2$, $b = x^3y^3$, where x and y are prime numbers, then the HCF (a, b) is :
(A) xy (B) x^2y^2 (C) x^3y^2 (D) x^5y^3
 - If α, β are zeroes of $p(x) = x^2 - 5x + k$ and $\alpha - \beta = 1$, the value of 'k' is :
(A) 4 (B) -6 (C) 6 (D) 5
 - If $\cos\theta = \frac{a}{b}$, then $\operatorname{cosec}\theta$ is equal to :
(A) $\frac{b}{a}$ (B) $\frac{b}{\sqrt{b^2 - a^2}}$ (C) $\frac{\sqrt{b^2 - a^2}}{b}$ (D) $\frac{a}{\sqrt{b^2 - a^2}}$

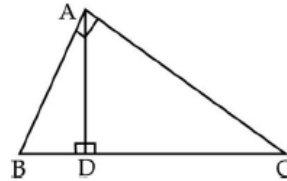
10. Find the LCM of 96 and 360 by using fundamental theorem of arithmetic.

An: 1440

11. Find all the zeroes of $f(x) = x^3 - 2x$.

An: Zeros are : $0, \sqrt{2}, -\sqrt{2}$

12. In the given figure $\angle A = 90^\circ$, $AD \perp BC$.
If $BD = 2$ cm and $CD = 8$ cm, find AD .



An: $AD = 4$ cm

13. What must be subtracted from the polynomial $f(x) = x^4 + 2x^3 - 13x^2 - 12x + 21$ so that the resulting polynomial is exactly divisible by $x^2 - 4x + 3$?

An: $2x - 3$

14. The mean of the following data is 18.75. Find the value of P :

Class mark (x_i)	10	5	P	25	30
Frequency (f_i)	5	10	7	8	2

An: $P = 20$

15. ABCD is a quadrilateral in which the diagonals AC and BD intersect at O such that $\frac{AO}{OC} = \frac{BO}{OD}$. Show that quadrilateral ABCD is a trapezium.

16. Two tankers contain 850 litres and 680 litres of petrol. Find the maximum capacity of a container which can measure the petrol of each tanker in exact number of times.

An: 170 litres

17. Find the zeroes of the quadratic polynomial $f(x) = x^2 - 3x - 28$ and verify the relationship between the zeroes and the co-efficients of the polynomial.

An: zeros are $+7, -4$

18. Solve for x and y : $\frac{10}{x+y} + \frac{2}{x-y} = 4$; $\frac{15}{x+y} - \frac{5}{x-y} = -2$; $x+y \neq 0$
 $x-y \neq 0$

An: $x=3, y=2$

19. Solve for x and y : $\frac{x}{a} = \frac{y}{b}$; $ax+by=a^2+b^2$

An: $y=b, x=a$

20. In ΔABC , $\angle ACB = 90^\circ$ and Also $CD \perp AB$. Prove that $\frac{BC^2}{AC^2} = \frac{BD}{AD}$

- 21 The following table gives the literacy rate (in %) in 40 cities. Find the mean literacy rate

Literacy rate (in %)	45 - 55	55 - 65	65 - 75	75 - 85	85 - 95
Number of cities	4	11	12	9	4

An: 69.5%

- 22 During a medical check of 35 students, their weights were recorded as follows :

Weight (in kg)	below 40	below 42	below 44	below 46	below 48	below 50	below 52
Number of students	3	5	9	14	28	31	35

Compute the modal weight.

An: 46.9

- 23 Prove that $3 + 2\sqrt{5}$ is irrational.

- 24 Draw the graphs of the equations $x - y + 1 = 0$ and $3x + 2y - 12 = 0$. Determine the co-ordinates of the vertices of the triangle formed by these lines and x -axis.

- 25 The median of the following data is 525. Find x and y if the sum of all frequencies is 100 :

Class	200 - 300	300 - 400	400 - 500	500 - 600	600 - 700	700 - 800
Frequency	16	x	17	20	15	y

An: $x = 12$ $y = 20$

- 26 If $p(x) = x^3 - 2x^2 + kx + 5$ is divided by $(x - 2)$, the remainder is 11. Find k .

Hence find all the zeroes of $x^3 + kx^2 + 3x + 1$

An: $-1, -1, -1$.

- 27 A man travels 300 km partly by train and partly by car. He takes 4 hours if he travels 60 km by train and the rest by car. If he travels 100 km by train and the remaining by car, he takes 10 minutes longer. Find the speed of the train and the car separately.

An: speed of the train = 60 km/hr

speed car = 80 km/hr

- 28 Obtain all the zeroes of $p(x) = 3x^4 + 6x^3 - 2x^2 - 10x - 5$ if two of its zeroes are $-1, -1$.

An: $-1, -1, \pm \sqrt{\frac{5}{3}}$

- 29 Draw a more than ogive for the data given below which gives the marks of 100 students :

Marks	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50	50 - 60	60 - 70	70 - 80
Number of students	4	6	10	10	25	22	18	5