



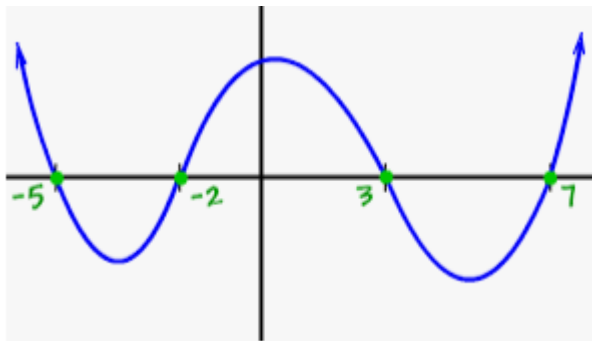
INDIAN SCHOOL AL WADI AL KABIR  
PRELIM PRACTICE 2020-21

Class: X

Mathematics –Revision Questions.

**SECTION- A**

1. If  $\alpha$  and  $\beta$  are the zeroes of the polynomial  $x^2 - 5x + 7$ , find the value of  $\alpha + \beta + \alpha\beta$  1
2. If  $\text{LCM}(a, 18) = 36$  and  $\text{HCF}(a, 18) = 2$ , find  $a$ . 1
3. Without drawing the graph, find whether the lines representing the following pair of linear equations intersect at a point, are parallel or coincident. 1  
 $18x - 7y = 24$ ,  $9x - \frac{7}{2}y = 13$ .
4. If  $-5$  is a root of the quadratic equation  $2x^2 + px - 15 = 0$ , find the value of  $p$ . 1
5. In  $\Delta ABC$   $DE \parallel BC$ ,  $AD : DB = 1 : 2$ , then evaluate  $ar(\Delta ADE) : ar(\Delta ABC)$ . 1
6. If the mode of a distribution is 17 and its mean is 18.5, what is the median? 1
7. Write decimal form:  $\frac{51}{1500}$  1
8. Find the zeroes:  $x^2 - 3$  1
9. Write the empirical relation among mean, median and mode. 1
10. Write the number of zeros of polynomial whose graph is given below. 1



**SECTION- B**

11. Prove:  $3 + 5\sqrt{2}$  is irrational. 2
12. Write a quadratic polynomial whose zeroes are  $-1$  and  $\frac{3}{2}$ . 2
13. Solve:  $37x + 43y = 123$ ;  $43x + 37y = 117$ . 2

14. Solve for x:  $5x+2y = 39$ ;  $3x-5y = -20$  2
15. Prove that in an isosceles right triangle, the square of the hypotenuse is equal to two times square of one of the equal sides. 2
16. The following data gives the information of the observed life time (in hours) of 225 electrical components. Determine the modal lifetime of the components.

Lifetime	0-20	20-40	40-60	60-80	80-100	100-120	2
No. of electrical components	10	35	54	61	47	29	

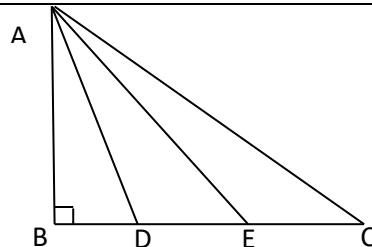
SECTION C

17. Find LCM and HCF: 1240 and 3100 3.
18. Find the zeroes of the polynomial  $2x^2 + 7x + 6$  and verify the relation between the zeroes and its coefficients. 3.
19. Nine times a two-digit number is the same as twice the number obtained by interchanging the digits of the number. If one digit of the number exceeds the other number by 7, find the number. 3.
20. Solve for x:  $\frac{1}{x+1} + \frac{1}{y-1} = \frac{4}{3}$ ;  $\frac{1}{x+1} - \frac{1}{y-1} = -\frac{2}{3}x \neq -1, y \neq 1$ . 3.
21. Prove that in a right triangle, square of the hypotenuse is equal to the sum of squares of other two sides. 3
22. Find the unknown entries a, b, c, d, e, and f in the following distribution of heights of students in a class and the total number of students is 50.

Height (cm)	150-155	155-160	160-165	160-170	170-175	175-180	3.
f (no. of students)	12	b	10	d	e	2	
Cf	a	25	c	43	48	f	

23. Solve the following pair of linear equations for x and y:  
 $\frac{4}{x} + 3y = 8$ ;  $\frac{6}{x} - 4y = -5$  3.
24. Find the value of k for which the following equations have infinite solutions:  
 $3(k-1)x + 4y = 5$  and  $(k+4)x + 8y = 10$ . 3.

25. In the given figure,  $\Delta ABC$  is right angled at B.  
BC is trisected at D and E.  
Prove:  $8AE^2 = 5AD^2 + 3AC^2$ .



26. Find median of the following data:

Class	0-10	10-20	20-30	30-40	40-50
Frequency	5	15	20	12	8

### SECTION D

27. In a seminar, number of participants from Class X, XI and XII are 252, 180 and 144 respectively. How many rooms for the seminar to be allotted in such a way that in each room has maximum, but equal number of participants of the same class to be seated? 4.

28. If  $\alpha$  and  $\beta$  are the zeroes of  $2x^2 - 5x + 6$ , find (i)  $\frac{1}{\alpha} + \frac{1}{\beta}$  and (ii)  $\alpha^2 + \beta^2$  4.

29. A group consists of honest and extremely kind people. If 8 honest people and 12 extremely kind people finish a piece of work in 10 days, while 6 honest and 8 extremely kind people can finish it in 14 days. Find the time taken by one honest people alone and that by extremely kind people alone to finish the work. 4.

30. Solve graphically:  $x - y + 1 = 0$  and  $3x + 2y - 12 = 0$ . Calculate the area bounded by these lines and x axis. 4.

31. Prove: If a line is drawn parallel to one side of a triangle to intersect the other two sides in distinct points, the other two sides are divided in the same ratio. 4.

32. The mean of the following frequency table is 50 and total frequency is 120. Find the missing frequencies  $f_1$  and  $f_2$ . 4.

Class	0-20	20-40	40-60	60-80	80-100	Total
Frequency	17	$f_1$	32	$f_2$	19	120

33. Draw the values of x and y if the median for the following is 31. 4.

Marks obtained	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50	50 - 60	Total
No. of students	5	x	6	y	6	5	40

\*\*\*\*\*