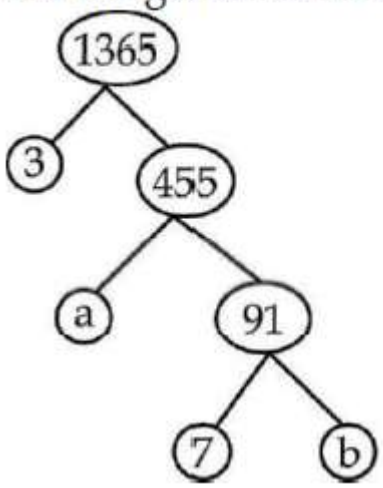
INDIAN SCHOOL AL WADI AL KABIR

DEPT. OF MATHEMATICS 2018 - 2019

HOLIDAY HOME WORK (CBSE QUESTIONS)

CLASS X **Date: 21-05-2018**

1. For the given factor tree :



find a and b

a= 5

b=13

2. PQR is an isosceles right angle triangle right angled at R. Prove that $PQ^2 = 2PR^2$.

3. Find the mode of a grouped data if its mean and median are 17 and 19 respectively, using the relationship connecting three measures of central tendancy.

4. If α and β are zeroes of the polynomial $p(x) = 3x^2 - 4x - 7$ then form a quadratic polynomial whose zeroes are $\frac{1}{\alpha}$ and $\frac{1}{\beta}$. $7x^2+4x-3$

5. Prove that 7+√5 is an irrational number

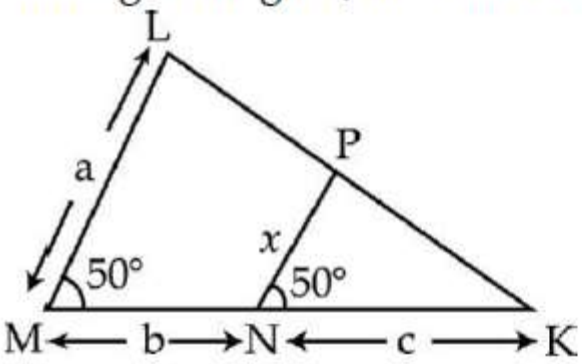
6. Show that any positive odd integer is of the form $4q+1, 4q+3$ where q is an integer.

7. For what value of k, -4 is a zero of the polynomial $p(x) = x^2 - 2x - (2k+2)$? Also find the other zero. K=11

6

8. D, E and F are the mid points of the sides BC, CA and AB respectively, of ΔABC. Determine the ratio of the areas of ΔDEF and ΔABC. $\frac{1}{4}$

9. In the given figure, find the value of x in terms of a, b and c.



$\frac{bc}{b+c}$

10. Find the mode of the following data : 25.2

Marks	Number of students
Below 10	8
Below 20	20
Below 30	45
Below 40	58
Below 50	70

11. If the median of the following data is 240, then find the value of f :

Classes	Frequency
0 – 100	15
100 – 200	17
200 – 300	f
300 – 400	12
400 – 500	9
500 – 600	5
600 – 700	2

20

12. The following table shows the heights (in cm) of 50 girls of class X of a school. 149.8

Height in cm	120 – 130	130 – 140	140 – 150	150 – 160	160 – 170	Total
Number of girls	2	8	12	20	8	50

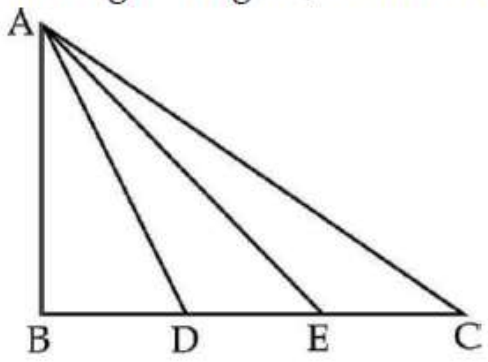
Find mean of the above data by step deviation method.

13. If α and β are zeroes of the polynomial $p(x) = 6x^2 - 5x + k$ such that $\alpha - \beta = \frac{1}{6}$ find the value of k. K=1

14. In a triangle if square of one side is equal to the sum of the squares of two sides, then prove that the angle opposite to the first side is a right angle.

15. In a right triangle ABC, P and Q are the points on the sides CA and CB respectively, which divides these sides in the ratio 2 : 1. Prove that $9(AQ^2 + BP^2) = 13AB^2$.

16. In the given figure, D and E trisect BC. Prove that $8AE^2 = 3AC^2 + 5AD^2$



17. Draw more than ogive for the following distributions. Find the median from the curve :

Marks	Number of students
0 – 10	10
10 – 20	18
20 – 30	40
30 – 40	20
40 – 50	12

18. What must be added to the polynomial $3x^4 + 5x^3 - 7x^2 + 5x + 3$ so that the resulting polynomial is exactly divisible by $x^2 + 3x + 1$. -3x-1

19. Find the difference of the upper limit of the median class and the lower limit of the modal class of the following data. 20

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

20. Find the mean marks from the following data :

Marks	Number of students
Below 10	5
Below 20	16
Below 30	35
Below 40	65
Below 50	80

**Submission Date: 07 /08 /2018

All the Best!