

**KENDRIYA VIDYALAYA GACHIBOWLI, HYDERABAD**  
**SAMPLE PAPER 02 : PERIODIC TEST – 1 (2017 – 18)**  
**CLASS – X**  
**MATHEMATICS**

**T.T. 1:30**

**M.M. 40**

**General Instructions:**

1. All questions are compulsory.
2. Question paper is divided into four sections: Section A contains 4 questions each carry 1 mark, Section B contains 4 questions each carry 2 marks, Section C contains 4 questions each carry 3 marks and Section D contains 4 questions each carry 4 marks.

**SECTION – A(1 marks each)**

1. Given that  $HCF(306, 657) = 9$ , find  $LCM(306, 657)$ .
2. For which value of  $k$  will the following pair of linear equations have no solution?  
 $3x + y = 1$  and  $(2k - 1)x + (k - 1)y = 2k + 1$
3. Find a quadratic polynomial whose zeroes are 3 and 2.
4. Find the value of  $x$  for which  $(8x + 4)$ ,  $(6x - 2)$  and  $(2x + 7)$  are in AP.

**SECTION – B(2 marks each)**

5. Find the zeroes of the quadratic polynomial  $3x^2 - x - 4$  and verify the relationship between the zeroes and the coefficients.
6. Which term of the AP 3, 8, 13, 18,..... will be 55 more than its 20<sup>th</sup> term?
7. If the sum of the first  $n$  terms of an AP is given by  $S_n = (3n^2 - n)$ , find its 20<sup>th</sup> term.
8. Find the values of  $k$  for quadratic equation  $2x^2 - x + k = 0$ , so that they have two equal roots.

**SECTION – C(3 marks each)**

9. Solve :  $(a - b)x + (a + b)y = a^2 - 2ab - b^2$   
 $(a + b)(x + y) = a^2 + b^2$
10. Prove that  $5 - 3\sqrt{2}$  is an irrational number.
11. If the sum of first 7 terms of AP is 49 and that of first 17 terms is 289, find the sum of first  $n$  terms.
12. Find the roots of the equation  $2x^2 - 5x + 3 = 0$ , by method of completing the square.

**SECTION – D(4 marks each)**

- 13.** Draw the graphs of the equations  $5x - y = 5$  and  $3x - y = 3$ . Determine the co-ordinates of the vertices of the triangle formed by these lines and the y axis.
- 14.** Use Euclid's division lemma to show that the square of any positive integer is either of the form  $3m$  or  $3m + 1$  for some integer  $m$ .
- 15.** Find all the zeroes of  $2x^4 - 3x^3 - 3x^2 + 6x - 2$ , if you know that two of its zeroes are  $\sqrt{2}$  and  $-\sqrt{2}$ .
- 16.** An express train takes 1 hour less than a passenger train to travel 132 km between Mysore and Bangalore (without taking into consideration the time they stop at intermediate stations). If the average speed of the express train is 11km/h more than that of the passenger train, find the average speed of the two trains.
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