

NAME \_\_\_\_\_  
CLASS X SEC \_\_\_\_\_

MATA GUJRI PUBLIC SCHOOL  
**IMPROVEMENT TEST (2017-18)**  
SUBJECT: MATHEMATICS (SET A)

MM:50  
TIME:2 HRS

SECTION A

(1 TERM)

(1X3=3)

28.7.17

- Q1. Write the first term and common difference of the A.P.:  $-40, -15, 10, 35, \dots$   
Q2. If  $HCF(120, 225) = 15$ , then find the LCM of 120 and 225.  
Q3. Find the nature of roots of the quadratic equation  $4x^2 + 4\sqrt{3}x + 3 = 0$

SECTION B

(2X4=8)

- Q4. If the sum of zeroes of the quadratic polynomial  $kx^2 + 2y - 3k$  is equal to twice their product, find the value of  $k$ .  
Q5. The difference between two numbers is 26 and one number is three times the other. Find the numbers. *2x + 3xy*  
Q6. For what value of  $k$  are the roots of the quadratic equation  $kx^2 + 4x + 1 = 0$  equal and real.  
Q7. Find the 6<sup>th</sup> term from the end of the A.P.  $17, 14, 11, \dots, -40$ .

SECTION C

*17, 14, 11, 8, 5, 2  
(3x5=15)*

- Q8. Prove that  $6 - \sqrt{2}$  is an irrational number.  
Q9. What must be subtracted from  $8x^4 + 14x^3 + x^2 + 7x + 8$  so that polynomial is exactly divisible by  $4x^2 - 3x + 2$ .  
Q10. A lending library has a fixed charge for the first three days and an additional charge for each day thereafter. Sarita paid ₹ 27 for a book kept for seven days while Susy paid ₹ 21 for the book she kept for five days. Find the fixed charge and the charge for each extra day.  
Q11. Sixth term of an A.P. is  $-10$  and tenth term is  $-26$  find its 15<sup>th</sup> term.  
Q12. If  $a = 7$ ,  $a_{13} = 35$ , find 'd' and  $S_{13}$ .

SECTION D

(4X6=24)

- Q13. Express the H.C.F. of 56 and 72 in the form of  $56x + 72y$  and find the value of  $x$  and  $y$ .  
Q14. If the zeroes of the polynomial  $x^3 - 3x^2 + x + 1$  are  $a - b, a, a + b$ , find  $a$  and  $b$ .  
Q15. 2 women and 5 men can together finish an embroidery work in 4 days, while 3 women and 6 men can finish it in 3 days. Find the time taken by 1 woman alone to finish the work, and also that taken by 1 man alone.  
Q16. A two digit number is such that the product of its digits is 18. When 63 is subtracted from the number, the digits interchange their places. Find the number. *calculate*  
Q17. If the sum of first 7 terms of an A.P. is 49 and that of first 17 terms is 289, find the sum of first  $n$  terms.  
Q18. Solve by the method of completing the squares:  $2x^2 - 7x + 3 = 0$ .

*Handwritten solutions for Q18:*  
 $2x^2 - 7x + 3 = 0$   
 $2x^2 - 6x - x + 3 = 0$   
 $2x(x-3) - 1(x-3) = 0$   
 $(2x-1)(x-3) = 0$   
 $2x-1=0 \Rightarrow x = \frac{1}{2}$   
 $x-3=0 \Rightarrow x = 3$   
*Other calculations:*  
 $120, 125$   
 $60, 125$   
 $30, 125$   
 $5 \overline{) 125}$   
 $25$   
 $100$   
 $25$   
 $15$   
 $30$   
 $125000$   
 $1125000$