

PERIODIC TEST – JULY 2026
CLASS – X
MATHEMATICS

Time Allowed: 1½ Hours

Max. Marks: 40

General Instructions:

- Read all the questions carefully.
- Marks are given against each section.

Section A

(10X1=10)

Q1. If the lines given by $3x + 2ky = 2$ and $2x + 5y + 1 = 0$ are parallel, then the value of k is:

- (a) $-\frac{5}{2}$ (b) $\frac{2}{5}$ (c) $\frac{15}{4}$ (d) None of these

Q2. If the common difference of an A.P. is 5, then what is $a_{18} - a_{13}$?

- (a) 5 (b) 25 (c) 20 (d) None of these

Q3. Find the sum of first 10 terms of the A.P.: $x-8, x-2, x+4, \dots$

- (a) $10x+190$ (b) $10x+210$ (c) $5x+190$ (d) None of these

Q4. The sum and product of zeroes of $P(x) = 63x^2 - 7x - 9$ are S and P respectively. Find the value of $27S + 14P$.

- (a) -1 (b) 2 (c) 1 (d) None of these

Q5. The LCM of two numbers, is 2400. Which of the following cannot be their HCF?

- (a) 2000 (b) 500 (c) 400 (d) None of these

Q6. If a and b are positive integers such that $\text{LCM}(a, b) = ab$, then all possible values of $\text{HCF}(a, b)$ is:

- (a) 1 (b) 2 (c) -1 (d) None of these

Q7. The zeroes of the polynomial $x^2 + \left(\frac{1}{6}\right)x - 2$ are:

- (a) -3, 4 (b) -4, 3 (c) $-\frac{3}{2}, \frac{4}{3}$ (d) None of these

Q8. The value of k for which $x+y-4=0$ and $2x+ky=3$ has no solution.

- (a) -2 (b) 2 (c) $\neq 2$ (d) None of these

Q9. Equation $(x+1)^2 - x^2 = 0$ has number of real roots equal to:

- (a) 1 (b) 2 (c) 3 (d) None of these

DIRECTION: In the question 10, a statement of Assertion (A) is followed by statement of Reason (R). Choose the correct option.

- (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of assertion (A).
(b) Both Assertion (A) and Reason (R) are true but reason (R) is not the correct explanation of assertion (A).
(c) Assertion (A) is true but Reason (R) is false.
(d) Assertion (A) is false but reason (R) is true.

Q10. **Assertion (A):** A quadratic polynomial having 5 and -3 as zeroes is $x^2 - 2x - 15$.**Reason (R):** The quadratic polynomial having α and β as zeroes is $P(x) = x^2 - (\alpha + \beta)x + \alpha\beta$.

Section B

(3X2=6)

Q11. If $ax^2+bx+c=0$ has equal roots, what is the value of c ?

Q12. Find the ratio between the LCM and HCF of 5, 15, 20.

OR

Three numbers are in the ratio 2:5:7 their LCM is 490. Find the square root of the largest number.

Q13. Find the sum of the zeroes of the quadratic polynomial: $-3x^2 + k$.

Section C

(3X3=9)

Q14. Prove that $\sqrt{5}$ is irrational.

Q15. A fraction becomes $\frac{9}{11}$ if 2 is added to both the numerator and denominator. If 3 is added to both the numerator and denominator, it becomes $\frac{5}{6}$. Find the fraction.

Q16. At t minutes past 2 p.m., the time needed by the minutes hand of a clock to show 3 p.m. was found to be 3 minutes less than $\frac{t^2}{4}$ minutes. Find t .

OR

Solve for x : $\frac{1}{2a+b+2x} = \frac{1}{2a} + \frac{1}{b} + \frac{1}{2x}$

Section D

(2X5=10)

Q17. A train travels a distances of 480 km at a uniform speed. If the speed had been 8 km/h less, then it would have taken 3 hours more to cover the same distance. Find the speed of the train.

Q18. Find the value of x : $(-4) + (-1) + 2 + \dots + x = 437$.

OR

Find the sum of first 24 terms of an AP whose n^{th} term is given by $a_n = 3 + 2n$

Section E (Case Study)

(2+2+1)

Q19. India is a competitive manufacturing location due to the low cost of manpower and strong technical and engineering capabilities, contributing to higher quality production runs. The production of TV sets in a factory increases uniformly by a fixed number every year. It produced 16,000 sets in the 6th year and 22,600 sets in the 9th year.

Based on the above information, answer the following questions:

- (a) Find the production during the 1st year.
- (b) (i) In which year, the production is 29,200 sets?

OR

- (ii) Find the difference of the production during 7th year and 4th year.
- (c) Find the production during the 8th year.