

KENDRIYA VIDYALAYA AIR FORCE STATION BARNALA
SAMPLE PAPER 03 : PERIODIC TEST – 1 (2017 – 18)
CLASS – IX
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. Factorize: $12x^2 - 7x + 1$
2. Simplify: $(256)^{\frac{5}{8}}$
3. The angles of triangle are $(x + 10^\circ)$, $(2x - 30^\circ)$ and x° . Find the value of x .
4. Write the linear equation such that each point on its graph has an ordinate 3 times its abscissa.

SECTION – B

5. If a and b are rational numbers and $\frac{\sqrt{11} - \sqrt{7}}{\sqrt{11} + \sqrt{7}} = a - b\sqrt{77}$, find the values of a and b .
6. Show that $0.47777777\dots$ can be expressed in the form of $\frac{p}{q}$, where p and q are integers and $q \neq 0$.
7. In below Fig. , if $AC = BD$, then prove that $AB = CD$



8. Use the Factor Theorem to determine whether $g(x)$ is a factor of $p(x)$ in each of the following cases:
(i) $p(x) = x^3 - 4x^2 + x + 6$, $g(x) = x - 3$
(ii) $p(x) = x^3 + 3x^2 + 3x + 1$, $g(x) = x + 2$

SECTION – C

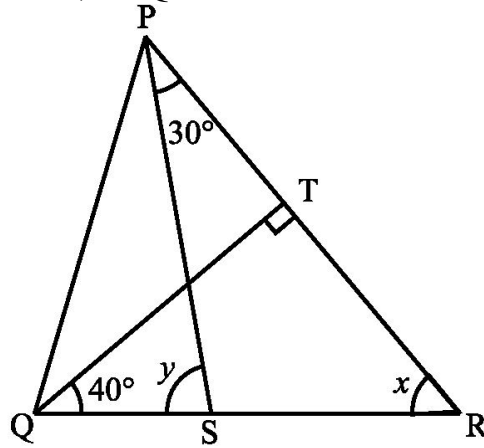
9. Simplify the following expressions:

(i) $2^{\frac{2}{3}} \cdot 2^{\frac{1}{3}}$ (ii) $11^{\frac{1}{4}} \div 11^{\frac{1}{2}}$ (iii) $8^{\frac{1}{2}} \cdot 7^{\frac{1}{2}}$

10. Write seven axioms of Euclid's Geometry.

11. Solve the equation $2y + 9 = 0$, and represent the solution(s) on (i) the number line, (ii) the Cartesian plane.

12. In the below figure, if $QT \perp PR$, $\angle TQR = 40^\circ$ and $\angle SPR = 30^\circ$, find x and y .

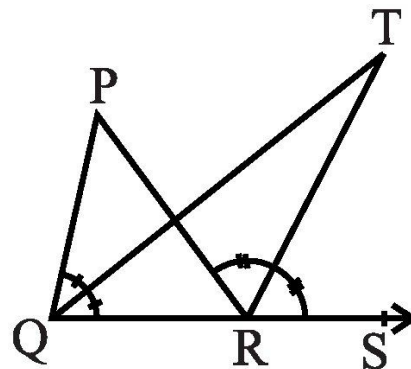


SECTION – D

13. Three vertices of a rectangle are $(4, 2)$, $(-3, 2)$ and $(-3, 7)$. Plot these points and find the coordinates of the fourth vertex.

14. The taxi fare in a city is as follows: For the first kilometre, the fare is Rs 8 and for the subsequent distance it is Rs 5 per km. Taking the distance covered as x km and total fare as Rs y , write a linear equation for this information, and draw its graph.

15. In the above right sided figure, the side QR of $\triangle PQR$ is produced to a point S . If the bisectors of $\angle PQR$ and $\angle PRS$ meet at point T , then prove that $\angle QTR = \frac{1}{2} \angle QPR$.



16. Factorise : (i) $8x^3 + 27y^3 + 36x^2y + 54xy^2$
 (ii) $8x^3 + y^3 + 27z^3 - 18xyz$

