

KENDRIYA VIDYALAYA AIR FORCE STATION BARNALA
SAMPLE PAPER 02 : PERIODIC TEST – 1 (2017 – 18)
CLASS – IX
MATHEMATICS

T.T. 1:30

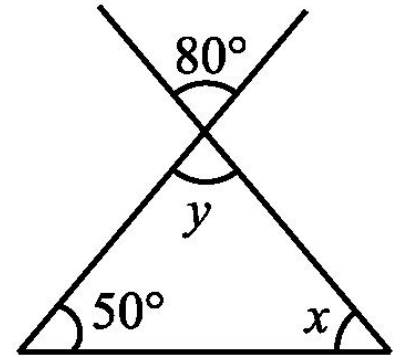
M.M. 40

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. Find the points where the graph of the equation $3x + 4y = 12$ cuts the x -axis and the y -axis.
2. Rationalize the denominator : $\frac{7 - 3\sqrt{2}}{7 + 3\sqrt{2}}$
3. Factorize: $6x^2 + 17x + 5$
4. Find the value of x and y in the adjacent figure.



SECTION – B

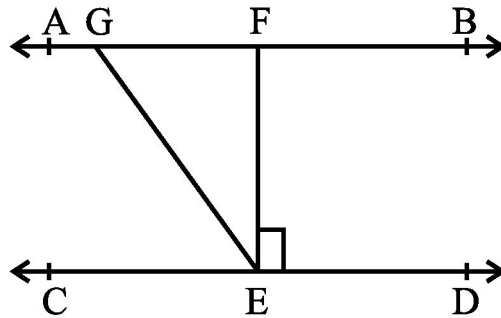
5. If a and b are rational numbers and $\frac{4 - 3\sqrt{5}}{4 + 3\sqrt{5}} = a + b\sqrt{5}$, find the values of a and b .
6. Show that $0.2353535\dots$ can be expressed in the form of $\frac{p}{q}$, where p and q are integers and $q \neq 0$.
7. Factorise: $x^3 - 23x^2 + 142x - 120$
8. If A , B and C are three points on a line, and B lies between A and C (see below fig.), then prove that $AB + BC = AC$.



SECTION – C

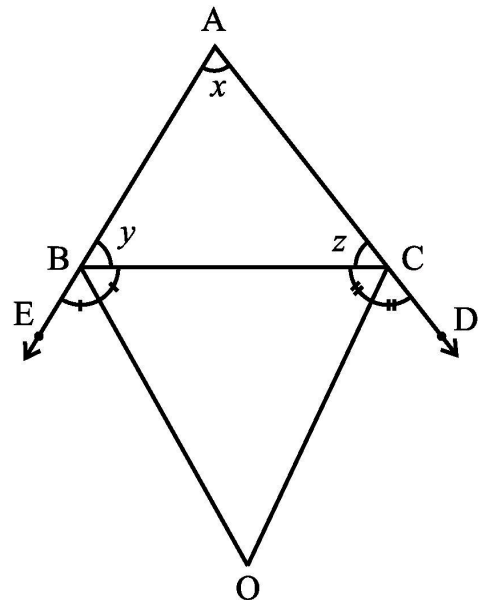
9. Simplify the following expressions: (i) $2^{\frac{2}{3}} \cdot 2^{\frac{1}{3}}$ (ii) $\left(\frac{1}{3^5}\right)^4$ (iii) $\frac{7^{\frac{1}{5}}}{7^{\frac{1}{3}}}$
10. Solve the equation $2x + 11 = 0$, and represent the solution(s) on (i) the number line, (ii) the Cartesian plane.

11. How would you rewrite Euclid's fifth postulate so that it would be easier to understand? Does Euclid's fifth postulate imply the existence of parallel lines? Explain.
12. In below figure, if $AB \parallel CD$, $EF \perp CD$ and $\angle GED = 126^\circ$, find $\angle AGE$, $\angle GEF$ and $\angle FGE$.



SECTION – D

13. In the adjacent figure, the sides AB and AC of a triangle ABC are produced to points E and D respectively. If bisectors BO and CO of $\angle CBE$ and $\angle BCD$ respectively meet at point O, then prove that $\angle BOC = 90^\circ - \frac{1}{2} \angle BAC$.



14. Points A (5, 3), B (-2, 3) and D (5, -4) are three vertices of a square ABCD. Plot these points on a graph paper and hence find the coordinates of the vertex C.

15. The polynomial $p(x) = x^4 - 2x^3 + 3x^2 - ax + 3a - 7$ when divided by $x + 1$ leaves the remainder 19. Find the values of a . Also find the remainder when $p(x)$ is divided by $x + 3$.
16. Draw the graphs of the equations $3x - 2y = 4$ and $x + y - 3 = 0$ in the same graph paper. Find the coordinates of the point where two lines intersect.

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