

KENDRIYA VIDYALAYA NDA PUNE-23
PERIODIC TEST – II Session – 2018-19

Time: 3 Hrs.

Subject: Mathematics

Class – X

M.M: 80

Instructions:

Attempt all questions , six questions in section A carries 1 mark , six questions in section B carries 2 marks , ten questions in section C carries 3 marks AND EIGHT questions in section D carries 4 marks.

Section – A

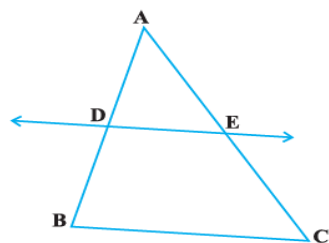
(6x1 = 6marks)

- 1) Given that HCF x LCM for the numbers 100 and 180 .
- 2) The general form of a cubic polynomial is _____
- 3) Find the value of k for quadratic equation $2x^2 - x + k = 0$,so that they have two equal roots.
- 4) Find the common difference of the given AP 4, 10, 16, 22,
- 5) The distance of a point from the y-axis is called its **x-coordinate**, or _____
- 6) If $\tan \theta = \frac{15}{8}$, find the value of $\sin \theta$

Section – B

(6x2= 12 marks)

- 7) Use Euclid’s algorithm to find the HCF of 4052 and 12576.
- 8) Solve $2x + 3y = 11$ and $2x - 4y = - 24$ and hence find the value of ‘m’ for which $y = mx + 3$.
- 9) In ΔABC right angled at C ,BC = 5cm and $AC - AB = 1$ cm, Evaluate $\frac{1 + \sin C}{\cos C}$.
- 10) If a line intersects sides AB and AC of a ΔABC at D and E respectively and is parallel to BC



Prove that $\frac{AD}{AB} = \frac{AE}{AC}$

- 11) In ΔPQR , right-angled at Q, $PR + QR = 25$ cm and $PQ = 5$ cm. Determine the values of $\sin P$, $\cos P$ and $\tan P$.
- 12) Find two numbers whose sum is 27 and product is 182.

Section – C

(10x3 = 30 marks)

13) Show that $5 - \sqrt{3}$ is an irrational.

14) Find the zeroes of the polynomial $x^2 - 3$ and verify the relationship between the zeroes and the coefficients

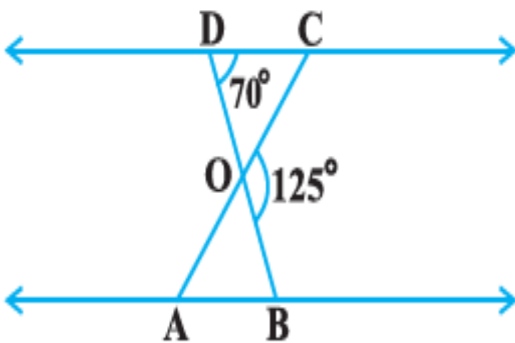
15) Draw the graphs of the equations $x - y + 1 = 0$ and $3x + 2y - 12 = 0$. Determine the coordinates of the vertices of the triangle formed by these lines and the x -axis, and shade the triangular region.

16) Find the roots of the equation $2x^2 - 5x + 3 = 0$ by the method of completing the square.

17) Which term of the AP : 21, 18, 15, ... is -81 ? Also, is any term 0?

18) Find the 11th term from the last term of the AP : 10, 7, 4, ..., -62 .

19) In the given figure $\triangle ODC \sim \triangle OBA$, $\angle BOC = 125^\circ$, $\angle CDO = 70^\circ$, Find $\angle DCO$, $\angle DOC$ and $\angle OAB$.



20) Prove that the ratio of the areas of two similar triangles is equal to the square of the ratio of their corresponding sides.

21) Find the ratio in which the line segment joining the points $(-3, 10)$ and $(6, -8)$ is divided by $(-1, 6)$.

22) Show that the points $(1, 7)$, $(4, 2)$, $(-1, -1)$ and $(-4, 4)$ are the vertices of a square.

Section – D

(8x4 = 32 marks)

23) 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 $-\sqrt{2}$.

24) Solve the given equations : $\frac{10}{x+y} + \frac{2}{x-y} = 4$; $\frac{15}{x+y} - \frac{5}{x-y} = -2$

25) Ritu can row downstream 20 km in 2 hours, and upstream 4 km in 2 hours. Find her speed of rowing in still water and the speed of the current

26) Prove that $\frac{\cot A - \cos A}{\cot A + \cos A} = \frac{\operatorname{cosec} A - 1}{\operatorname{cosec} A + 1}$

27) The sum of first 14 terms of an AP is 1050 and its first term is 10, find the 20th term.

28) If A(-5, 7), B(-4, -5), C(-1, -6) and D(4, 5) are the vertices of a quadrilateral, find the area of the quadrilateral ABCD .

29) A train travels 360 km at a uniform speed. If the speed had been 5 km/h more, it would have taken 1 hour less for the same journey. Find the speed of the train

30) In Figure, altitudes AD and CE of $\triangle ABC$ intersect each other at the point P. Show that:

(i) $\triangle AEP \sim \triangle CDP$ (ii) $\triangle ABD \sim \triangle CBE$ (iii) $\triangle AEP \sim \triangle ADB$ (iv) $\triangle PDC \sim \triangle BEC$

