19.08.19 EVERWIN MATRIC.HR.SEC.SCHOOL Time:1.30 Hrs.

Std: X SPECIAL TEST Marks: 50

MATHEMATICS

I. Choose the correct answer: 8x1=8

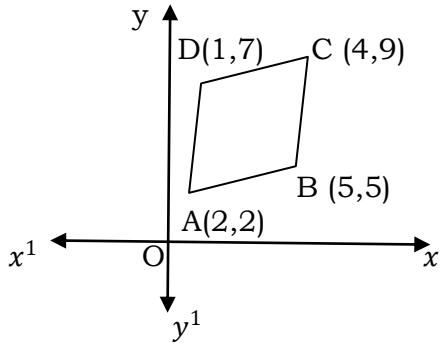
1. The slope of a vertical line is _____.
   a) 0 b) Undefined c) 1 d) $\sqrt{3}$
2. Two straight lines $a_1x + b_1y+c_1=0$ and $a_2x + b_2y + c_2=0$ where the Coefficients are non-zero are perpendicular if and only if _____.
   a) $a_1b_2 + a_2b_1=0$ b) $a_1a_2 - b_1b_2=0$
   c) $a_1a_2 + b_1b_2=0$ d) $a_1b_2 - a_2b_1=0$
3. The area of triangle formed by the points (-5,0), (0,-5) and (5,0) is _____.
   a) 0 sq. units b) 25 sq. units c) 5sq. units d) 7 sq. units
4. If (5,7), (3,p) and (6,6) are collinear, then the value of P is _____.
   a) 3 b) 6 c) 9 d) 12
5. The point of intersection of $3x$-y=4 and $x + y = 8$ is _____.
   a) (5,3) b) (2,4) c) (3,5) d) (4,4)
6. If slope of the line PQ is $\frac{1}{\sqrt{3}}$ then slope of the perpendicular bisector of PQ is _____.
   a) $\sqrt{3}$ b) $-\sqrt{3}$ c) $\frac{1}{\sqrt{3}}$ d) 0
7. The slope of the line joining (12,3), (4,a) is $\frac{1}{8}$. The value of 'a' is _____.
   a) 1 b) 4 c) -5 d) 2
8. (2,1) is the point of intersection of two lines _____.
   a) x-y-3=0; $3x$-y-7=0 b) $x + y = 3; 3x + y = 7$
   c) $3x$+y=3; x+y=17 d) $x + 3y - 3 = 0; x$-y-7=0

II. Answer any five of the following: 6x2=12

9. Find the slope of the straight line $7x-\frac{3}{17} = 0$
10. Find the equation of a straight line which has slope $\frac{-5}{4}$ and passing through point (-1,2).
11. Find the intercepts of the line $4x$+3y+12=0.
12. Find the slope of (Sinθ,- Cosθ) and (-Sinθ, Cosθ).
13. Show that the points are collinear (-3,-4), (7,2) and (12,5)
14. Find the value of K, if the area of a quadrilateral is 28 sq .units, whose vertices are (-4, -2), (-3, K) (3,-2) and (2,3).
15. Show that the straight lines x-2y+3=0 and 6x+3y+8=0 are perpendicular.
16. Find the slope and y-intercept of $\sqrt{3}\ x$+(1-$\sqrt{3}$)y=3

III. Answer any six of the following: 6x5=30

17. The given diagram shows a plan for constructing a new parking lot at a campus. It is estimated that such construction would cost ₹1300 per square feet. What will be the total cost for making the parking lot?



18. Show that the given points form a parallelogram A (2.5, 3.5), B(10,-4), C (2.5, -2.5), D(-5,5)
19. Find the equation of a line which passes through (5,7) and makes intercepts on the axes equal in magnitude but opposite in sign.
20. Find the equation of a straight line through the intersection of lines 5x-6y=2, $3x + 2y = 10$ and perpendicular to the line 4x-7y+13=0.
21. If A (-3,0), B(10,-2) and C(12,3) are the vertices of ΔABC. Find the equation of the altitude through B.
22. Two buildings of different heights are located at opposite sides of each other. If a heavy rod is attached joining the terrace of the buildings from (6,10) to (14,12) find the equation of the rod joining the buildings.
23. If the points A(-3,9), B (a,b) and C (4,-5) are collinear and if a+b=1, then find a and b.
24. Find the equation of the perpendicular bisector of the line joining the points A(-4,2) and B(6,-4)