ST. LAWRENCE HIGH SCHOOL

A JESUIT CHRISTIAN MINORITY INSTITUTION

FOR GOD AND COUNTRY

SOLUTIONS OF WORKSHEET-13

SUBJECT – MATHEMATICS

1st - Term

Chapter: Co-ordinate Geometry **Class: XI**

Topic: Straight Lines 2 **Date: 10.08.2020**

Choose the correct option (1 x 15=15)

1 If the point (5, 2) bisects the intercept of a line between the axes, then its equation is

(a) $5x + 2y = 20$ (b) $2x + 5y = 20$ (c) $5x - 2y = 20$ (d) $2x - 5y = 20$

2 $A(6, 3)$, $B(-3, 5)$, $C(4, -2)$ and $D(x, 3x)$ are four points. If $\Delta DBC : \Delta ABC = 1:2$, then x is equal to

(a) 11/8 (b) 8/11 (c) 3 (d) none of these

3 If p be the length of the perpendicular from the origin on the line $x/a + y/b = 1$, then

(a) $p^2 = a^2 + b^2$ (b) $p^2 = \frac{1}{a^2} + \frac{1}{b^2}$ (c) $\frac{1}{p^2} = \frac{1}{a^2} + \frac{1}{b^2}$ (d) none of these

4 The equation of the line passing through (1, 5) and perpendicular to the line $3x - 5y + 7 = 0$ is

(a) $5x + 3y - 20 = 0$ (b) $3x - 5y + 7 = 0$ (c) $3x - 5y + 6 = 0$ (d) $5x + 3y + 7 = 0$

5 The figure formed by the lines $ax \pm by \pm c = 0$ is

(a) a rectangle (b) a square (c) a rhombus (d) none of these

6. A line passes through the point (2, 2) and is perpendicular to the line $3x + y = 3$. Its y-intercept is

(a) 1/3 (b) 2/3 (c) 1 (d) 4/3

7. If the lines $ax + 12y + 1 = 0$, $bx + 13y + 1 = 0$ and $cx + 14y + 1 = 0$ are concurrent, then a, b, c are in

(a) H.P. (b) G.P. (c) A.P. (d) none of these

8. The number of real values of λ for which the lines $x - 2y + 3 = 0$, $\lambda x + 3y + 1 = 0$ and $4x - \lambda y + 2 = 0$ are concurrent is

(a) 0 (b) 1 (c) 2 (d) Infinite

9. The equations of the sides AB, BC and CA of ΔABC are $y - x = 2$, $x + 2y = 1$ and $3x + y + 5 = 0$ respectively. The equation of the altitude through B is

(a) $x - 3y + 1 = 0$ (b) $x - 3y + 4 = 0$ (c) $3x - y + 2 = 0$ (d) none of these

10. If p_1 and p_2 are the lengths of the perpendiculars from the origin upon the lines $x \sec\theta + y \operatorname{cosec}\theta = a$ and $x \cos\theta - y \sin\theta = a \cos 2\theta$ respectively, then

(a) $4p_1^2 + p_2^2 = a^2$ (b) $p_1^2 + 4p_2^2 = a^2$ (c) $p_1^2 + p_2^2 = a^2$ (d) none of these

11. Area of the triangle formed by the points $((a+3)(a+4), a+3)$, $((a+2)(a+3), (a+2))$ and $((a+1)(a+2), (a+1))$ is

(a) $25a^2$ (b) $5a^2$ (c) $24a^2$ (d) none of these

12. If $a + b + c = 0$, then the family of lines $3ax + by + 2c = 0$ pass through fixed point
(a) $(2, 2/3)$ (b) $(2/3, 2)$ (c) $(-2, 2/3)$ (d) none of these

13. The line segment joining the points $(-3, -4)$ and $(1, -2)$ is divided by y-axis in the ratio
(a) 1 : 3 (b) 2 : 3 (c) 3 : 1 (d) 3 : 2

14. The area of a triangle with vertices at $(-4, -1)$, $(1, 2)$ and $(4, -3)$ is
(a) 17 (b) 16 (c) 15 (d) none of these

15. The line segment joining the points $(1, 2)$ and $(-2, 1)$ is divided by the line $3x + 4y = 7$ in the ratio
(a) 3 : 4 (b) 4 : 3 (c) 9 : 4 (d) 4 : 9

1.b , 2.a , 3.c , 4.a , 5.c , 6.d , 7.c , 8.a ,
9.b , 10.a , 11.d , 12.b , 13.c , 14.a , 15.d

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