	BCM SCHOOL, BASANT AVENUE, DUGRI, LUDHIANA CLASS-X (MATHEMATICS) ASSIGNMENT(NOVEMBER,2023) TOPIC: COORDINATE GEOMETRY	
1.	B	1
2.	C	1
3.	B	1
4.	Let the given points be: A(-2, -5) = (x_1, y_1) B(6, 3) = (x_2, y_2) The line x – 3y = 0 divides the line segment joining the points A and B in the ratio k : 1. Using section formula, x = (6k – 2)/(k + 1) and y = (3k – 5)/(k + 1) Here, the point of division lies on the line x – 3y = 0. Thus, [(6k – 2)/(k + 1)] – 3[(3k – 5)/(k + 1)] = 0 k = 13/3 Therefore, x = [6(13/3) – 2]/ [(13/3) + 1] = (78 – 6)/(13 + 3) = 72/16 = 9/2 And y = [3(13/3) – 5]/ [(13/3) + 1] = (39 – 15)/(13 + 3) = 24/16 = 3/2 Therefore, the coordinates of the point of intersection = (9/2, 3/2).	2

5.	Two vertices of ΔABC are A(-1,4) and B(5,2). Let the third vertex be C (a, b)
	Then the co-ordinates of its centroid are
	C= (−1+5+a)/3,(4+2+b)/ 3
	C= (4+a)/3, (6+b)/3
	But it is given that G(0,-3) is the centroid. Therefore
	0=(4+a)/3,−3=(6+b)/3
	     a=-4 , -9-6=b
	  a = -4, b = -15
	Therefore, the third vertex of ΔABC is C(-4,-15)
		3

6.	Let $A(x_1, y_1)$, $B(x_2, y_2)$, $C(x_3, y_3)$ be the vertices of $\triangle ABC$ We have D is the midpoint of AB $\Rightarrow (3, 4) = (\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2})$ $\Rightarrow x_1 + x_2 = 6$ ....(1) and $y_1 + y_2 = 8$ ....(2) E is the midpoint of BC $\Rightarrow (8, 9) = (\frac{x_2 + x_3}{2}, \frac{y_2 + y_3}{2})$ $\Rightarrow x_2 + x_3 = 16$ ....(3) and $y_2 + y_3 = 18$ ....(4) F is the midpoint of AC $\Rightarrow (6, 7) = (\frac{x_1 + x_3}{2}, \frac{y_1 + y_3}{2})$ $\Rightarrow x_1 + x_3 = 12$ ....(5) and $y_1 + y_3 = 14$ ....(6) Equation (1) – (3) we get $x_1 + x_2 - x_2 - x_3 = 6 - 16$ $\Rightarrow x_1 - x_3 = -10$ ....(7) Equation (5) + (7) we get $x_1 + x_3 + x_1 - x_3 = 12 - 10 = 2$ $\Rightarrow 2x_1 = 2$ or $x_1 = 1$ Substituting the value of $x_1 = 1$ in eqn(1) we get $x_1 + x_2 = 6$ or $x_2 = 6 - 1 = 5$ Substituting the value of $x_1 = 1$ in eqn(5) we get $x_1 + x_3 = 12$ or $x_3 = 12 - 1 = 11$ Equation (2) – (4) we get $y_1 + y_2 - y_2 - y_3 = 8 - 18$ $\Rightarrow y_1 - y_3 = -10$ ....(8) Add equations (8) and (6) we get $y_1 - y_3 + y_1 + y_3 = -10 + 14$ $\Rightarrow y_1 = 2$ From (2) $y_1 + y_2 = 8$ or $y_2 = 8 - 2 = 6$ From (4) $y_1 + y_3 = 18$ or $y_3 = 18 - 2 = 16$ $\therefore$ the co-ordinates of vertices of $\triangle ABC$ is $A(1, 2)$, $(5, 6)$, $C(11, 16)$	**3**
7.	**A) the required point is (1/2, 0)** **B) the required point is (0,1)** **C) & D) DO IT YOURSELF**	**4**