

**MATHEMATICS**  
**WORKSHEET\_051125**  
**CHAPTER 07 COORDINATE GEOMETRY**

**SUBJECT: MATHEMATICS**  
**CLASS : X**

**MAX. MARKS : 40**  
**DURATION :  $1\frac{1}{2}$  hrs**

**General Instructions:**

- (i). All questions are compulsory.
- (ii). This question paper contains 20 questions divided into five Sections A, B, C, D and E.
- (iii). Section A comprises of 10 MCQs of 1 mark each. Section B comprises of 4 questions of 2 marks each. Section C comprises of 3 questions of 3 marks each. Section D comprises of 1 question of 5 marks each and Section E comprises of 2 Case Study Based Questions of 4 marks each.
- (iv). There is no overall choice.
- (v). Use of Calculators is not permitted

**SECTION – A**

**Questions 1 to 10 carry 1 mark each.**

1. Points A(3, 1), B(5, 1), C(a, b) and D(4, 3) are vertices of a parallelogram ABCD. The values of a and b are respectively  
(a) a = 6, b = 3                      (b) a = 2, b = 1                      (c) a = 4, b = 2                      (d) None of these
2. If the distance between the points (x, -1) and (3, 2) is 5, then the value of x is  
(a) -7 or -1                      (b) -7 or 1                      (c) 7 or 1                      (d) 7 or -1
3. The ratio in which x-axis divides the join of (2, -3) and (5, 6) is:  
(a) 1: 2                      (b) 3 : 4                      (c) 1: 3                      (d) 1: 5
4. Points A(-1, y) and B(5, 7) lie on a circle with centre O(2, -3y). The values of y are  
(a) 1, -7                      (b) -1, 7                      (c) 2, 7                      (d) -2, -7
5. If C(1, -1) is the mid-point of the line segment AB joining points A(4, x) and B(-2, 4), then value of x is :  
(a) 5                      (b) -5                      (c) 6                      (d) -6
6. The coordinate of point P on X-axis equidistant from the points A (-1, 0) and B (5, 0) is  
(a) (2, 0)                      (b) (0, 2)                      (c) (3, 0)                      (d) (2, 2)
7. The ratio in which the line segment joining the points P(-3, 10) and Q(6, -8) is divided by O(-1, 6) is:  
(a) 1:3                      (b) 3:4                      (c) 2:7                      (d) 2:5
8. The vertices of a parallelogram in order are A(1, 2), B(4, y), C(x, 6) and D(3, 5). Then (x, y) is:  
(a) (6, 3)                      (b) (3, 6)                      (c) (5, 6)                      (d) (1, 4)

**In the following questions 9 and 10, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as:**

- (a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
- (b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
- (c) Assertion (A) is true but reason (R) is false.
- (d) Assertion (A) is false but reason (R) is true.

- 9. Assertion (A):** The value of y is 3, if the distance between the points P(2, -3) and Q(10, y) is 10.

**Reason (R):** Distance between two points is given by  $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

- 10. Assertion (A):** The point  $(-1, 6)$  divides the line segment joining the points  $(-3, 10)$  and  $(6, -8)$  in the ratio  $2 : 7$  internally.

**Reason (R):** Given three points, i.e. A, B, C form an equilateral triangle, then  $AB = BC = AC$ .

### **SECTION – B**

**Questions 11 to 14 carry 2 marks each.**

- 11.** Find the ratio in which the line segment joining the points  $(6, 4)$  and  $(1, -7)$  is divided by  $x$ -axis.
- 12.** The line segment AB joining the points  $A(3, -4)$  and  $B(1, 2)$  is trisected at the points  $P(p, -2)$  and  $Q(5/3, q)$ . Find the values of  $p$  and  $q$ .
- 13.** What point on the  $x$ -axis is equidistant from  $(7, 6)$  and  $(-3, 4)$ ?
- 14.** Use distance formula to show that the points  $A(-2, 3)$ ,  $B(1, 2)$  and  $C(7, 0)$  are collinear.

### **SECTION – C**

**Questions 15 to 17 carry 3 marks each.**

- 15.** Show that the points  $A(1, 2)$ ,  $B(5, 4)$ ,  $C(3, 8)$  and  $D(-1, 6)$  are the vertices of a square.
- 16.** If  $A(5, 3)$ ,  $B(11, -5)$  and  $C(12, y)$  are vertices of a right triangle right angled at C, then find the value of  $y$ .

**OR**

Find the coordinates of the point of trisection of the line segment joining  $(1, -2)$  and  $(-3, 4)$ .  
Ans: Let the points P and Q trisect AB.

- 17.** In what ratio does the line  $x - y - 2 = 0$  divide the line segment joining  $(3, -1)$  and  $(8, 9)$ ?

**OR**

Find the ratio in which the point  $(2, y)$  divides the line segment joining the points  $A(-2, 2)$  and  $B(3, 7)$ . Also find the value of  $y$ .

### **SECTION – D**

**Questions 18 carry 5 marks.**

- 18.** Find the centre of a circle passing through  $(5, -8)$ ,  $(2, -9)$  and  $(2, 1)$ .

**OR**

If the points  $(10, 5)$ ,  $(8, 4)$  and  $(6, 6)$  are the mid-points of the sides of a triangle, find its vertices.

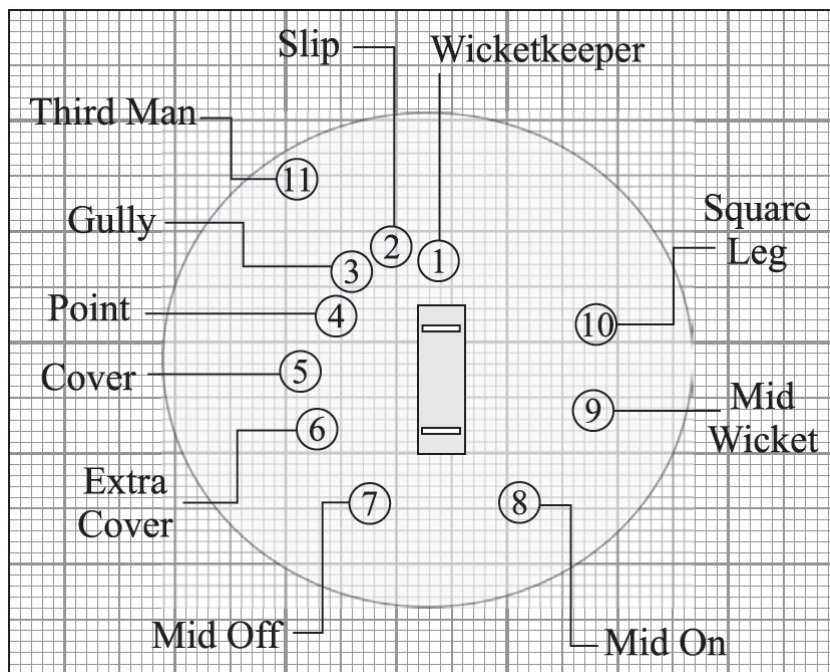
### **SECTION – E (Case Study Based Questions)**

**Questions 19 to 20 carry 4 marks each.**

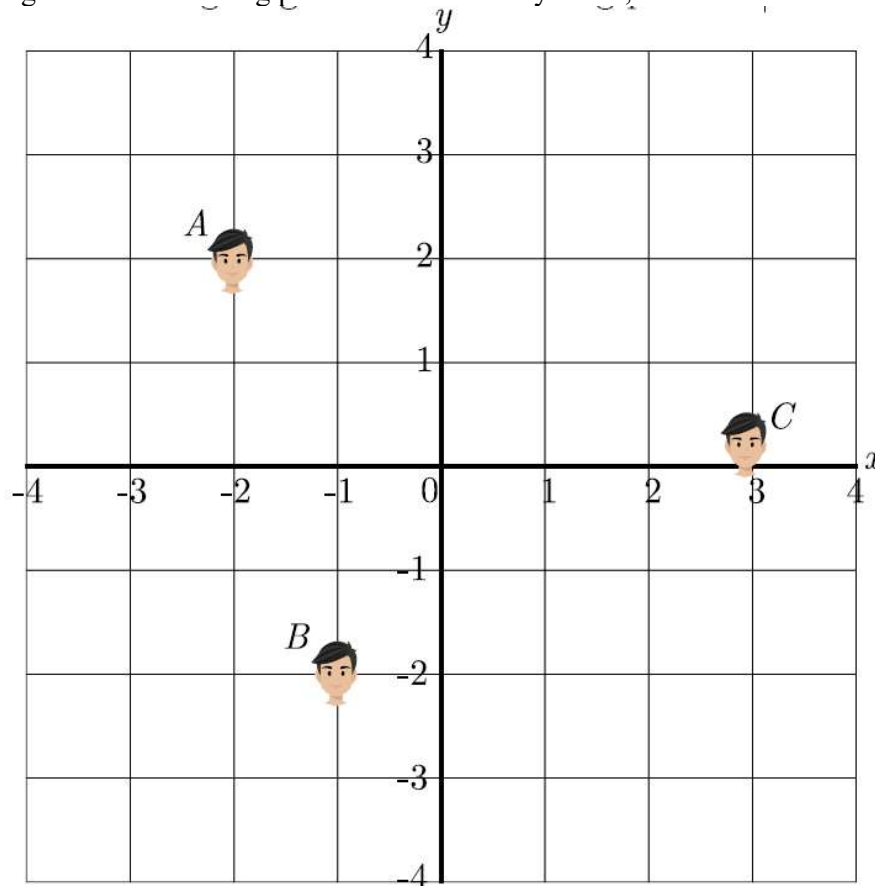
- 19.** In the sport of cricket the Captain sets the field according to a plan. He instructs the players to take a position at a particular place. There are two reasons to set a cricket field—to take wickets and to stop runs being scored.

The following graph shows the position of players during a cricket match.

- (i) Find the coordinate of the point on  $y$ -axis which are equidistant from the points representing the players at Cover P $(2, -5)$  and Mid-wicket Q $(-2, 9)$
- (ii) Find the ratio in which  $x$ -axis divides the line segment joining the points Extra Cover S $(3, -3)$  and Fine Leg  $(-2, 7)$ .



20. Aditya, Ritesh and Damodar are fast friend since childhood. They always want to sit in a row in the classroom . But teacher doesn't allow them and rotate the seats row-wise everyday. Ritesh is very good in maths and he does distance calculation everyday. He consider the centre of class as origin and marks their position on a paper in a co-ordinate system. One day Ritesh make the following diagram of their seating position marked Aditya as  $A$ , Ritesh as  $B$  and Damodar as  $C$ .



- What is the distance between A and B ? [1]
- What is the distance between B and C ? [1]

(iii) A point D lies on the line segment between points A and B such that  $AD : DB = 4 : 3$ . What are the coordinates of point D ? [2]

**OR**

(iii) If the point P(k, 0) divides the line segment joining the points A(2, -2) and B(-7, 4) in the ratio 1 : 2, then find the value of k [2]

.....