

1. Find the distance between the points  $\mathbf{A}(-\frac{7}{3}, 5)$  and  $\mathbf{B}(\frac{2}{3}, 5)$ .
2. Check whether 13cm, 12cm, 5cm can be the sides of a right triangle.
3. (a) If  $PL$  and  $PM$  are two tangents to a circle with centre  $\mathbf{O}$  from an external point  $\mathbf{P}$  and  $PL = 4$  cm, find the length of  $OP$ , where radius of the circle is 3 cm.  
 (b) Find the distance between two parallel tangents of a circle of radius 2.5 cm.
4. Find the coordinates of the points which divides the line segment joining the points  $\mathbf{A}(7, -1)$  and  $\mathbf{B}(-3, -4)$  in the ratio 2 : 3.
5. To divide a line segment  $QP$  internally in the ratio 2 : 3, we draw a ray  $QY$  such that  $\angle PQY$  is acute. What will be the minimum number of points to be located at equal distances on the ray  $QY$  ?
6. Answer any four of the following questions :
  - (i) The point which divides the line segment joining the points  $(7, -6)$  and  $(3, 4)$  in the ratio 1 : 2 lies in  
 (A) I quadrant  
 (B) II quadrant  
 (C) III quadrant  
 (D) IV quadrant
  - (ii) If the  $\mathbf{A}(1, 2)$ ,  $\mathbf{O}(0, 0)$  and  $\mathbf{C}(a, 6)$  are collinear, then the value of  $a$  is  
 (A) 6  
 (B)  $\frac{3}{2}$   
 (C) 3  
 (D) 12
  - (iii) The distance between the points  $\mathbf{A}(0, 6)$  and  $\mathbf{B}(0, -2)$  is  
 (A) 6 units  
 (B) 8 units  
 (C) 4 units  
 (D) 2 units
  - (iv) If  $(\frac{a}{3}, 4)$  is the mid-point of the line segment joining the points  $(-6, 5)$  and  $(-2, 3)$ , then the value of 'a' is  
 (A) -4  
 (B) 4  
 (C) -12  
 (D) 12

- (v) What kind of triangle is formed with vertices **A**(0, 2), **B**(−3, 0) and **C**(3, 0) ?
- (A) A right triangle  
 (B) An equilateral triangle  
 (C) An isosceles triangle  
 (D) A scalene triangle
7. (a) If the distance between the points  $(k, -2)$  and  $(3, -6)$  is 10 units, find the positive value of  $k$ .  
 (b) Find the length of the segment joining **A**(−6, 7) and **B**(−1, −5). Also, find the mid-point of  $AB$ .
8. A man goes 5 metres due to West and then 12 metres due North. How far is he from the starting point ?
9. Students of a school are standing in rows and columns in their school playground to celebrate their annual sports day. **A**, **B**, **C** and **D** are the positions of four students as shown in the figure.

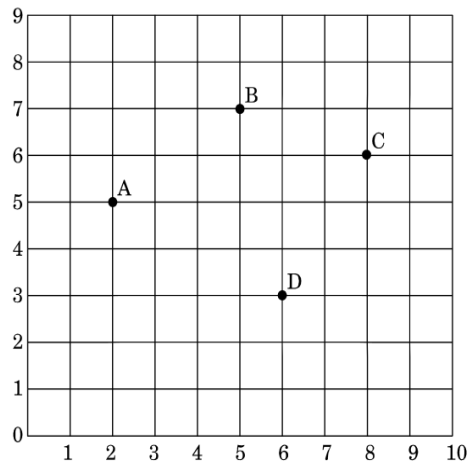


Figure 1: Based on the above, answer the following question :

- (i) The figure formed by the points **A**, **B**, **C** and **D** is a
- (A) square  
 (B) parallelogram  
 (C) rhombus  
 (D) quadrilateral
- (ii) If the sports teacher is sitting at the origin, then which of the four students is closest to him ?

- (A) **A**
  - (B) **B**
  - (C) **C**
  - (D) **D**
- (iii) The distance between **A** and **C** is
- (A)  $\sqrt{37}$  units
  - (B)  $\sqrt{35}$  units
  - (C) 6 units
  - (D) 5 units
- (iv) The coordinates of the mid-point of line segment  $AC$  are
- (v) If a point **P** divides the line segment  $AD$  in the ratio 1 : 2, then coordinates of **P** are
- (A)  $(\frac{8}{3}, \frac{8}{3})$
  - (B)  $(\frac{10}{3}, \frac{13}{3})$
  - (C)  $(\frac{13}{3}, \frac{10}{3})$
  - (D)  $(\frac{16}{3}, \frac{11}{3})$
10. (a) Check whether the points **P**(5, -2), **Q**(6, 4) and **R**(7, -2) are the vertices of an isosceles triangle PQR.
- (b) Find the ratio in which **P**(4, 5) divides the join of **A**(2, 3) and **B**(7, 8).
11. The coordinates of the three consecutive vertices of a parallelogram ABCD are **A**(1, 3), **B**(-1, 2), and **C**(2, 5). Find the coordinates of the fourth vertex **D**.
12. (a) If **P**(2, 2), **Q**(-4, -4) and **R**(5, -8) are the vertices of a  $\triangle PQR$ , then find the length of the median through **R**.
- (b) Find the ratio in which y-axis divides the line segment joining the points **A**(5, -6) and **B**(-1, -4). Also, find the coordinates of the point of intersection.
13. (a) Find the ratio in which the line segment joining the points **A**(1, -5) and **B**(-4, 5) is divided by the x-axis. Also, find coordinates of the point of division.
- (b) The points **A**(0, 3), **B**(-2,  $a$ ) and **C**(-1, 4) are the vertices of a right triangle, right-angled at **A**. Find the value of  $a$ .