

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 O from an external point 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 divide 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 $\mathbf{A}(0, 2)$, $\mathbf{B}(-3, 0)$ and $\mathbf{C}(3, 0)$?
- (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 $\mathbf{A}(-6, 7)$ and $\mathbf{B}(-1, -5)$. 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.

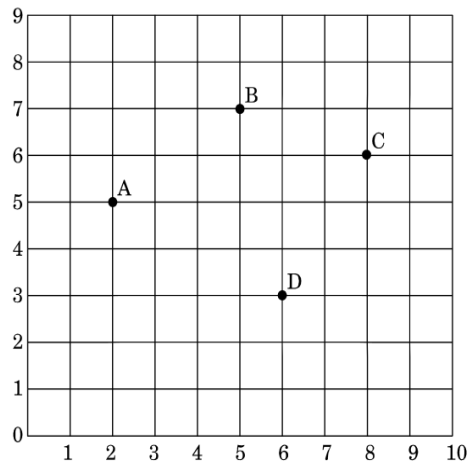


Figure 1: Based on the above, answer the following question :

- (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.