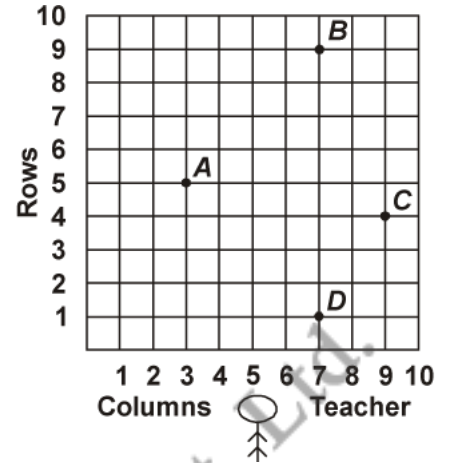


Q1. Find the area of the triangle whose vertices are $(-8, 4)$, $(-6, 6)$ and $(-3, 9)$.

Q2. Students of a school are standing in rows and columns in their playground for a drill practice. A, B, C and D are the positions of four students as shown in figure. Is it possible to place Jaspal in the drill in such a way that he is equidistant from each of the four students A, B, C and D ? If so, what should be his position?



Q3. Name the type of triangle formed by the points $A(-5, 6)$, $B(-4, -2)$ and $C(7, 5)$.

Q4. Find the points of the X -axis which are at a distance of $2\sqrt{5}$ from the point $(7, -4)$. How many such points are there?

Q5. What type of a quadrilateral to the points $A(2, -2)$, $B(7, 3)$ and $D(6, -6)$ taken in that order form?

Q6. Find the value of a , if the distance between the points $A(-3, -14)$ and $B(a, -5)$ is 9 units.

Q7. Find a point which is equidistant from the point $A(-5, 4)$ and $B(-1, 6)$. How many such points are there?

Q8. Find the coordinates of the point Q on the X -axis which lies on the perpendicular bisector of the line segment joining this points $A(-5, -2)$ and $B(4, -2)$. Name the type of triangle formed by the point Q, A and B .

Q9. Find the value of m , if the points $(5, 1)$, $(-2, -3)$ and $(8, 2m)$ are collinear.

Q10. Find the ratio in which the point $P\left(\frac{3}{4}, \frac{5}{12}\right)$ divides the line segment joining the points $A\left(\frac{1}{2}, \frac{3}{2}\right)$ and $B(2, -5)$.

Q11. If $P(9a - 2, -b)$ divides line segment joining $A(3a + 1, -3)$ and $B(8a, 5)$ in the ratio $3 : 1$, then find the values of a and b .

Q12. If (a, b) is the mid-point of the line segment joining the points $A(10, -6)$, $B(k, 4)$ and $a - 2b = 18$, then find the value of k and the distance AB .

Q13. If the centre of a circle is $(2a, a - 7)$, then find the values of a , if the circle passes through the point $(11, -9)$ and has diameter $10\sqrt{2}$ units.

Q14. The line segment joining the points $A(3, 2)$ and $B(5, 1)$ is divided at the point P in the ratio $1 : 2$ and it lies on the line $3x - 18y + k = 0$. Find the value of k .

Q15. Find the coordinates of the point R on the line segment joining the points $P(-1, 3)$ and $Q(2, 5)$ such that $PR = \frac{3}{5} PQ$.

- Q16.** Find the values of k , if the points $A(k + 1, 2k)$, $B(3k, 2k + 3)$ and $C(5k - 1, 5k)$ are collinear.
- Q17.** If $(-4, 3)$ and $(4, 3)$ are two vertices of an equilateral triangle, then find the coordinates of the third vertex, given that the origin lies in the interior of the triangle.
- Q18.** $A(6, 1)$, $B(8, 2)$ and $C(9, 4)$ are three vertices of a parallelogram $ABCD$. If E is the mid-point of DC , then find the area of $\triangle ADE$.
- Q19.** Ayush starts walking from his house to office. Instead of going to the office directly, he goes to a bank first, from there to his daughter's school and then reaches the office. What is the extra distance travelled by Ayush in reaching his office? (Assume that all distance covered are in straight lines). If the house is situated at $(2, 4)$ bank at $(5, 9)$, school at $(13, 14)$ and office at $(13, 26)$ and coordinates are in km.
- Q20.** If the point $A(2, -4)$ is equidistant from $P(3, 8)$ and $Q(-10, y)$, then find the value of y . Also, find distance PQ .
- Q21.** In what ratio does the X -axis divide the line segment joining the points $(-4, -6)$ and $(-1, 7)$? Find the coordinates of the points of division.
- Q22.** If $D\left(-\frac{1}{2}, \frac{5}{2}\right)$, $E(7, 3)$ and $F\left(\frac{7}{2}, \frac{7}{2}\right)$ are the mid-points of sides of $\triangle ABC$, then find the area of the $\triangle ABC$.
- Q23.** If the points $A(2, 9)$, $B(a, 5)$ and $C(5, 5)$ are the vertices of a $\triangle ABC$ right angle at B , then find the values of a and hence the area of $\triangle ABC$.
- Q24.** Find the ratio in which the line $2x + 3y - 5 = 0$ divides the line segment joining the points $(8, -9)$ and $(2, 1)$. Also, find the coordinates of the point of division.
- Q25.** The points $A(x_1, y_1)$, $B(x_2, y_2)$ and $C(x_3, y_3)$ are the vertices of $\triangle ABC$.
- The median from A meets BC at D . Find the coordinates of the point D .
 - Find the coordinates of the point P on AD such that $AP : PD = 2 : 1$.
 - Find the coordinates of points Q and R on medians BE and CF , respectively such that $BQ : QE = 2 : 1$ and $CR : RF = 2 : 1$.
 - What are the coordinates of the centroid of the $\triangle ABC$?
- Q26.** If the points $A(1, -2)$, $B(2, 3)$, $C(a, 2)$ and $D(-4, -3)$ form a parallelogram, then find the value of a and height of the parallelogram taking AB as base.

- S1.** 0.
- S2.** Yes, required position = (7.5).
- S3.** Scalene triangle.
- S4.** Two points (5, 0) and (9, 0).
- S5.** Rectangle.
- S6.** $a = -3$.
- S7.** (-3, 5), Infinite points.
- S8.** (-1/2, 0), Isosceles triangle.
- S9.** $m = 19/14$.
- S10.** 1 : 5.
- S11.** $a = 1, b = -3$.
- S12.** $k = 22, AB = 2\sqrt{61}$.
- S13.** $a = 5$ and 3.
- S14.** $k = 19$.
- S15.** $R(4/5, 21/5)$
- S16.** $k = 2, 1/2$.
- S17.** Vertex third = $(0, 3 - 4\sqrt{3})$.
- S18.** $ar(\Delta ADE) = 3/4$ sq. units.
- S19.** Extra distance travelled by ayush is 2.4 km.
- S20.** If $y = -3, PQ = \sqrt{290}$ and if $y = -5, PQ = 13\sqrt{2}$.
- S21.** Ratio = 6 : 7, Point = $\left(\frac{-34}{13}, 0\right)$.
- S22.** $ar(\Delta ABC) = 11$.
- S23.** $a = 2, 5$ $ar \Delta ABC = 6$ sq. units.
- S24.** Ratio = 8 : 1, Point = $(8/3, -1/9)$.

S25. (i) $D = \left(\frac{x_2 + x_3}{2}, \frac{y_2 + y_3}{2} \right)$

(ii) $P = \left(\frac{x_1 + x_2 + x_3}{3}, \frac{y_1 + y_2 + y_3}{3} \right)$

(iii) $Q = \left(\frac{x_1 + x_2 + x_3}{3}, \frac{y_1 + y_2 + y_3}{3} \right),$

(iv) $\left(\frac{x_1 + x_2 + x_3}{3}, \frac{y_1 + y_2 + y_3}{3} \right)$

$R = \left(\frac{x_1 + x_2 + x_3}{3}, \frac{y_1 + y_2 + y_3}{3} \right)$

S26. $a = -3$, height of a \parallel^{gm} is $\frac{12\sqrt{26}}{13}$.

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