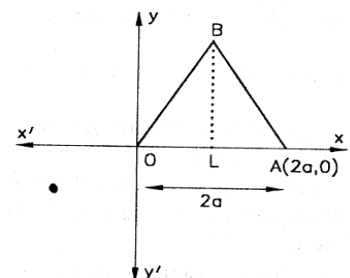


**MATHEMATICS CLASS X (SA-2)**

**COORDINATE GEOMETRY**

<b>Q.1</b>	Find the equation of perpendicular bisector of line joining the point ( 7 , 1 ) and ( 3 , 5 ) .
<b>Q.2</b>	The co-ordinates of A,B,C are (6,3), (-3,5) and (4,-2) respectively and P is any point on (x,y). show that the ratio of the areas of triangles PBC and ABC is $\frac{ x+y-2 }{7}$ .
<b>Q.3</b>	The Points A(2, 9), B(a, 5), C(5, 5) are the vertices of a triangle ABC right angled at B. Find the value of 'a' and hence the area of $\Delta ABC$ .
<b>Q.4</b>	Show that the point P(-4, 2) lies on the line segment joining the points A(-4, 6) and B(-4, -6).
<b>Q.5</b>	Find the value of a when the distance between the points (3, a) and (4, 1) is $\sqrt{10}$ .
<b>Q.6</b>	Find a point on the x-axis which is equidistant from the points (7, 6) and (-3, 4).
<b>Q.7</b>	For what value of k are the pints (1, 1), (3, k) and (-1, 4) collinear ?
<b>Q.8</b>	Coordinates of the vertices of $\Delta ABC$ are A (- 4, -2), B (-3, 5) and C (K, -2). Find the positive integral value of K if area of triangle is 15 sq. units.
<b>Q.9</b>	Two vertices of a triangle are (1, 2), (3, 5) and its centroid is at the origin. Find the coordinates of the third vertex.
<b>Q.10</b>	If the points A(a, - 11), B (5, b), C (2, 15) and D (1, 1) are the vertices of a parallelogram ABCD, find the values of a and b.
<b>Q.11</b>	Find the coordinates of point on the line joining A(3, -4) and B(-2, 5) that is twice as far from A as from B.
<b>Q.12</b>	Prove that the coordinates of the pint which divided the line segment joining the pints $(x_1, y_1)$ and $(x_2, y_2)$ internally in the ratio $m : n$ are given by $x = \frac{mx_2 + nx_1}{m+n}$ , $y = \frac{my_2 + ny_1}{m+n}$ .
<b>Q.13</b>	Show that the points (a, a), (-a, -a) and $(-a\sqrt{3}, a\sqrt{3})$ are the vertices of an equilateral triangle.
<b>Q.14</b>	A (1, 1) and B(2, -3) are two points and D is a point on AB produced such that

	AD = 3 AB. Find the coordinates of D.
<b>Q.15</b>	Find the coordinates of the vertices of an equilateral triangle of side 2a as shown in fig. 
<b>Q.16</b>	Find the center of circle of circle passing through the vertices of triangle whose sides are $x + y = 2$ ; $3x - 4y - 6 = 0$ , and $x - y = 0$ .
<b>Q.17</b>	Prove that the distance between two point $(x_1, y_1)$ & $(x_2, y_2)$ is equal to $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ .
<b>Q.18</b>	Find the coordinates of the circumcentre of the triangle whose vertices are (3, 0), (-1, -6) and (4, -1). Also, find its circumradius.
<b>Q.19</b>	The three vertices of a parallelogram are (3, 4), (3, 8) and (9, 8). Find the fourth vertex.
<b>Q.20</b>	Find the area of the triangle formed by joining the midpoints of the sides of the triangle whose vertices are (0, -1), (2, 1), and (0, 3). Find the ratio of this area to the area of the given triangle.
<b>Q.21</b>	Show that the points A (5, 6), B (1, 5), C (2,1) and D (6, 2) are the vertices of a square. Also find its area .
<b>Q.22</b>	A(3, 2) and B(-2, 1) are two vertices of a triangle ABC, whose centroid has coordinates $(5/3, -1/3)$ . Find the coordinates of the third vertex C of the triangle.
<b>Q.23</b>	Determine the ratio in which the points (6, a) divides the join of A(-3, -1) and B(-8, 9). Also find the value of a.
<b>Q.24</b>	The co-ordinates of the mid-point of the line joining the points (3p, 4) and (-2, 2q) are (5, p). Find the values of p and q.
<b>Q.25</b>	If 'a' is the length of one of the sides of an equilateral triangle ABC, base BC lies on x-axis and vertex B is at the origin, find the coordinates of the vertices of the triangle ABC.

<b>Q.26</b>	Find the value of k for which the points with coordinates (3, 2), (4, K) and (5, 3) are collinear.
<b>Q.27</b>	If A(6,-1), B(1,3) and C(k,8) are three points such that AB = BC, find the value of k.
<b>Q.28</b>	In what ratio is the line segment joining the points (-2,-3) and (3,7) divided by the y-axis . Also. find the coordinates of the points of division.
<b>Q.29</b>	Show that the points (a, b + c), (b, c + a), (c, a + b), are collinear .
<b>Q.30</b>	Find the area of quadrilateral ABCD whose vertices are A (-5,7),B (-4,-5),C (-1,-6) and D(4,5).
<b>Q.31</b>	The centre of the circle is (-1, 6) and one end of a diameter is (5, 9), find the coordinates of the other end.
<b>Q.32</b>	If (3, 0), (2, a) and (b, 6) are the vertices of a triangle ABC whose centroid is (2, 5). Find the values of a and b.
<b>Q.33</b>	If A(-1, 3), B(1, -1) and C(5, 1) are the three vertices of a triangle ABC, find the length of median through B.
<b>Q.34</b>	If the coordinates of the mid-points of the sides of a triangle are (1, 2), (0, -1) and (2, -1), find the coordinates of its vertices.
<b>Q.35</b>	Using section formula show that (4, -11), (5, 3), (2, 15) and (1, 1) are the vertices of a parallelogram.
<b>Q.36</b>	Find the point which represents the three-fourths of the distance from (3, 2) to (-5, 6).
<b>Q.37</b>	Find the coordinates of the centre of circle, the coordinates of the end points of whose diameters are (-5, -2) and (7, -6). Also find the radius of the circle.
<b>Q.38</b>	Find the coordinates of the points of trisection of the line segment joining the points (4, -8) and (7, 4).
<b>Q.39</b>	The area of a triangle is 5. Two of its vertices are (2, 1) and (3, -2). The third vertex lies on $y = x + 3$ . Find the third vertex.
<b>Q.40</b>	Find the coordinates of a point whose distance from (3, 5) is 5 units and that from (0, 1) is 10 units.
<b>Q.41</b>	Find the ratio in which the line-segment joining the points (6, 4) and (1, -7) is divided by x-axis.
<b>Q.42</b>	Find the value of m for which the points with co-ordinates (3, 5), (m, 6) and (1/2,

	15/2) are collinear.
<b>Q.43</b>	The coordinates of one end of a diameter of a circle are (4, -1) and the coordinates of the centre of the circle are (1, -3). Find the coordinates of the other end of diameter.
<b>Q.44</b>	Find the value of x such that PQ = QR where the coordinates of P, Q and R are (6, -1), (1, 3) and (x, 8) respectively.
<b>Q.45</b>	Find the third vertex of a triangle, if two of its vertices are at (-3, 1), (0, -2) and the centroid is at the origin.
<b>Q.46</b>	Show that the points (7, 10), (-2, 5) and (3, -4) are the vertices of an isosceles right triangle. Also find its area .
<b>Q.47</b>	Determine the ratio in which the line $3x + y - 9 = 0$ divides the segment joining the points (1, 3) and (2, 7).
<b>Q.48</b>	Find the coordinates of the point R which divides the line segment joining the points P (-2, 3) and Q (4, 7) internally in the ratio $\frac{4}{7}$ .
<b>Q.49</b>	Find the value of x, if the distance between the points (x, -1) and (3, 2) is 5.
<b>Q.50</b>	Find the distance of the point (6, -6) from the origin.
<b>Q.51</b>	In what ratio does the point $C\left(\frac{3}{5}, \frac{11}{5}\right)$ divide the line segment joining the points A(3, 5) and (-3, -2)?
<b>Q.52</b>	Find the distance of the point (6, 5) from the x axis .
<b>Q.53</b>	If the point C(-1,2) divides internally the line segment joining A(2,5) and B in the ratio 3:4, find the coordinates of B.
<b>Q.54</b>	If the point P (x, y) is equidistant from the points A(5, 1) and B(-1, 5), prove that $3x = 2y$ .
<b>Q.55</b>	Find the distance between the points (a, b) and (-a, -b).
<b>Q.56</b>	Find the area of a rhombus if its vertices are (3, 0), (4, 5), (-1, 4) and (-2, -1) taken in order.
<b>Q.57</b>	If the point (x, y) is equidistant from the points (a+b, b-a) and (a-b, a+b), prove that $bx=ay$ .
<b>Q.58</b>	The line segment joining the points (3, -4) and (1, 2) is trisected at the points P and Q. If the coordinates of P and Q are (p, -2) and $\left(\frac{5}{3}, q\right)$ respectively, find the values of p and q.

<b>Q.59</b>	Find the coordinates of the points which divide the line segment joining the points (-2, 0) and (0, 8) in four equal parts.
<b>Q.60</b>	The line joining the points (2, 1) and (5, -8) is trisected at the points P and Q. If point P lies on the line $2x - y + k = 0$ , find the value of k.
<b>Q.61</b>	Find the coordinates of the points which divide the line segment joining the points (5, 7) and (8, 10) in three equal parts.
<b>Q.62</b>	If A (5, -1), B(-3, -2) and C (-1, 8) are the vertices of $\Delta ABC$ , find the length of median through A and the coordinates of the centroid.
<b>Q.63</b>	Determine the ratio in which the point P (m, 6) divides the join of A(-4, 3) and B(2, 8). Also find the value of m.
<b>Q.64</b>	Find the area of the quadrilateral whose vertices, taken in order are (2, 1), (6, 2), (5, 6) and (1, 5).
<b>Q.65</b>	For $\Delta ABC$ whose vertices are A (1, -1), B(5, 1) and C(-1, 3), verify that a median divides it into two triangles of equal areas.
<b>Q.66</b>	Find the coordinates of the point equidistant from the points A(1, 2), B(3, -4) and C(5, -6).
<b>Q.67</b>	If two vertices of a parallelogram are (3, 2), (-1, 0) and the diagonal cut at (2, -5). Find the other vertices of a parallelogram.
<b>Q.68</b>	Find the area of the quadrilateral ABCD whose vertices are respectively A(1, 1), B(7, -3), C(12, 2) & D(7, 21).
<b>Q.69</b>	Find the point P on the x-axis which is equidistant from the points A(5, 4) and B(-2, 3). Also find the area of $\Delta PAB$ .
<b>Q.70</b>	If the mid-point of the line joining the points (3, 4) and (k, 7) is (x, y) and satisfy the equation $2x + 2y + 1 = 0$ , find the value of k.
<b>Q.71</b>	Find the value (s) of k for which the distance between the points (k, -5) and (2, 7) is 13 units.
<b>Q.72</b>	The coordinates of a point which divides the join of A(3, 6) and B internally in the ratio 2 : 3 is $C\left(\frac{1}{5}, \frac{34}{5}\right)$ . Find the coordinates of B.
<b>Q.73</b>	The coordinates of the mid-point of the line joining the points (2p + 2, 3) and (4, 2q + 1) are (2p, 2q). Find the value of p and q.
<b>Q.74</b>	If (-2, 2), (x, 8), (6, y) are three concyclic points whose centre is (2, 5). Find the values of x and y.
<b>Q.75</b>	Find the coordinates of the center of a circle which passes through the point A(1, 2), B(3, -4) and C(5, -6). Also, find the radius of the circle.

<b>Q.76</b>	Find the coordinates of the point which is at a distance of 2 units from (5, 4) and 10 units from (11, -2).
<b>Q.77</b>	Find the point on the y-axis which is equidistant from A (-5, -2) and B(3, 2).
<b>Q.78</b>	The co-ordinates of two points A and B are (3, 4) and (5, -2) respectively. Find the coordinates of any point P if $PA = PB$ and $A(\Delta PAB) = 10$ .
<b>Q.79</b>	The ordinate of a point is twice its abscissa. Find the coordinates of the point if its distance from (4, 3) is $\sqrt{10}$ .
<b>Q.80</b>	Find the value of x for which the distance between the point P(2, -3) and Q(x, 5) is 10 units.
<b>Q.81</b>	The distance between A(x, 7) and B(1, 3) is 5. calculate x.
<b>Q.82</b>	If the points (2, 1) and (1, -2) are equidistant from the point (x, y) show that $x + 3y = 0$
<b>Q.83</b>	Determine the ratio in which $2x + 3y - 30 = 0$ divides the line segment joining A(3, 4) and B(7, 8) and at what point?
<b>Q.84</b>	Find the area of the quadrilateral whose vertices taken in order are A(-5, -3), B(-4, -6), C(2, -1) and D(1, 2).
<b>Q.85</b>	If centre of circle passing through (a, -8), (b, -9) and (2, 1) is (2, -4), find the value of a and b.
<b>Q.86</b>	Prove that the point (a, 0), (0, b) and (1, 1) are collinear if $\frac{1}{a} + \frac{1}{b} = 1$ .
<b>Q.87</b>	Determine the ratio in which the line $2x + y - 4 = 0$ divide the line segment joining the points (2, -2) and (3, 7). Also find the coordinates of the point of division.
<b>Q.88</b>	The line segment joining the points (3, -4) and (1, 2) is trisected at the points P and Q. if the coordinates of P and Q are (p, -2) and (5/3, q) respectively. Find the value of p and q.
<b>Q.89</b>	If a vertex of a triangle be (1, 1) and the middle points of the sides through it be (-2, 3) and (5, 2), find the other vertices.
<b>Q.90</b>	The coordinates of the vertices of $\Delta ABC$ are A(4, 1), B(-3, 2) and C(0, k). Given that the area of $\Delta ABC$ is 12 units <sup>2</sup> , find the value of k.
<b>Q.91</b>	Find the coordinates of the circumcentre of the triangle whose vertices are (8, 6), (8, -2) and (2, -2). Also, find its circum-radius.
<b>Q.92</b>	Find the coordinates of the centre of the circle passing through the points (0, 0), (-2, 1) and (-3, 2). Also, find its radius.
<b>Q.93</b>	The length of a line segment is of 10 units and the coordinates of one end-point are (2, -3). If the abscissa of the other end is 10, find the ordinate of the other end.

<b>Q.94</b>	Prove that (2, - 2), (- 2, 1) and (5, 2) are the vertices of right angled triangle. Find the area of the triangle and the length of the hypotenuse.
<b>Q.95</b>	Prove that the points (2a, 4a), (2a, 6a) and (2a + $\sqrt{3}$ a, 5a) are the vertices of an equilateral triangle.
<b>Q.96</b>	Find the coordinates of the circum-centre of the triangle whose vertices are (3, 0), (- 1, - 6) and (4, - 1). Also, find its circum-radius.
<b>Q.97</b>	Three vertices of a parallelogram are (a + b, a - b), (2a + b, 2a - b), (a - b, a + b). Find the fourth vertex.
<b>Q.98</b>	Find the lengths of the median as of a $\Delta ABC$ having vertices at A(0, - 1), B(2, 1) and C(0, 3).
<b>Q.99</b>	If the coordinates of the mid-points of the sides of a triangle are (1, 1), (2, - 3) and (3, 4), find its vertices.
<b>Q.100</b>	Find the coordinates of the points which divide the line segment joining the points (- 4, 0) and (0, 6) in four equal parts.
<b>Q.101</b>	Prove analytically that the line segment joining the middle points of two sides of a triangle is equal to half of the third side.
<b>Q.102</b>	Prove that coordinates of the centroid of a triangle ABC, with vertices (x <sub>1</sub> , y <sub>1</sub> ), (x <sub>2</sub> , y <sub>2</sub> ) and (x <sub>3</sub> , y <sub>3</sub> ) are given by $\left(\frac{x_1 + x_2 + x_3}{3}, \frac{y_1 + y_2 + y_3}{3}\right)$ .
<b>Q.103</b>	If A and B are (1, 4) and (5, 2) respectively, find the coordinates of P when $\frac{AP}{BP} = \frac{3}{4}$ .
<b>Q.104</b>	Find the ratio in which the point (-3, k) divides the line segment joining the points (- 5, -4) and (-2, 3). Hence find the value of k.
<b>Q.105</b>	Four points A(6, 3), B(-3, 5) C(4, -2) and D(x, 3x) are given in such a way that $\frac{\text{Area}(\Delta DBC)}{\text{Area}(\Delta ABC)} = \frac{1}{2}$ find x.
<b>Q.106</b>	If the point P(x,y) is equidistant from the points A(3,6) and B(-3,4) prove that 3x + y - 5 = 0.
<b>Q.107</b>	If A(4 -8), B(3,6) and C(5,- 4) are the vertices of a $\Delta ABC$ , D is the mid-point of BC and is P is point on AD joined such that $\frac{AP}{PD} = 2$ find the coordinates of P.
<b>Q.108</b>	Find the coordinates of the circum centre of the triangle whose vertices are P(5, 1), Q

	(-3, -7) and R (7, -1). Also find the area of circle.
<b>Q.109</b>	Find the area of quadrilateral whose vertices, taken in order, are (-3, 2), B(5, 4), (7, - 6) and D(-5, -4).
<b>Q.110</b>	Find the coordinates of the points which divide the line segment joining the points (- 8, 0) and (4,-8) in four equal parts.
<b>Q.111</b>	If the point C(-1,2) divides line segment AB in the ratio 3:4, where the co-ordinates of A are (2,5), find the co-ordinates of B.
<b>Q.112</b>	Prove that the points A(4, 3), B(6, 4), C(5, -6) and D(3, -7) in that order are the vertices of a parallelogram. Also prove that diagonal of parallelogram divides the triangle of equal area.
<b>Q.113</b>	Point P(5,- 3) is one of the two points of trisection of the line segment joining the points A (7, -2) and B(1, -5) near to A. Find the coordinates of the other point of trisection.
<b>Q.114</b>	If the points A(1,-2), B(2,3), C (a,2) and D(-4,-3) form a parallelogram, find the value of a and height of the parallelogram taking AB as base.
<b>Q.115</b>	The co-ordinates of the vertices of $\Delta ABC$ are A (4,1), B (-3,2) and C ( 0 , k). Given that the area of ABC is $12\text{unit}^2$ , find the value of k.
<b>Q.116</b>	The vertices of a $\Delta PQR$ are P (4, 6), Q (1, 5) and R (7, 2). A line is drawn to intersect sides PQ and PR at S and T respectively, such that $\frac{PS}{PQ} = \frac{PT}{PR} = \frac{1}{4}$ . Calculate the area of the $\Delta PST$ and compare it with the area of $\Delta PQR$ .
<b>Q.117</b>	Find the coordinates of the point which divides the line segment joining the points (6, 3) and (-4, 5) in the ratio 3:2 internally.
<b>Q.118</b>	Find the ratio in which the join of points (1, 3), (2, 7) is divided by the line 3x + y = 9. Also find the point of division.