EduSahara™ Assignment

Name : Section Formula

Chapter : Distance and Section Formulae

Grade : ICSE Grade X

1. Find the point that divides the join of points $(5,(-6))$ and $(4,8)$ internally in the ratio $1:7$

   (i) $(\frac{55}{8},(-\frac{9}{4}))$ (ii) $(\frac{47}{8},(-\frac{21}{4}))$ (iii) $(\frac{23}{8},(-\frac{25}{4}))$ (iv) $(\frac{31}{8},(-\frac{13}{4}))$ (v) $(\frac{39}{8},(-\frac{17}{4}))$

2. Find the coordinates of the mid points of the sides of the triangle formed by $(7,4),((-6),4)$ and $(2,(-8))$

   (i) $((-\frac{1}{2}),5),((-2),(-2)),(\frac{9}{2},(-2))$ (ii) $(\frac{1}{2},4),((-2),(-2)),(\frac{5}{2},(-4))$ (iii) $(\frac{1}{2},4),((-2),(-2)),(\frac{11}{2},(-3))$

   (iv) $(\frac{1}{2},4),(0,0),(\frac{9}{2},(-2))$ (v) $(\frac{1}{2},4),((-2),(-2)),(\frac{9}{2},(-2))$

3. Find the coordinates of the vertices of the triangle, the mid points of whose sides are $((-2),0),((-1),\frac{1}{2})$ and $(0,\frac{3}{2})$

   (i) $((-1),1),((-3),(-1)),(2,1)$ (ii) $((-1),1),((-3),(-1)),((-1),0)$ (iii) $((-1),1),(1,2)$

   (iv) $((-2),2),((-3),(-1)),(1,2)$ (v) $((-1),1),((-3),(-1)),(1,2)$

4. The coordinates of the point dividing the join of points (x_1,y_1) and (x_2,y_2) internally in the ratio m:n are

   (i) $(\frac{nx_2-mx_1}{\text{m - n}},\frac{ny_2-my_1}{\text{m - n}})$ (ii) $(\frac{nx_2+mx_1}{\text{m + n}},\frac{ny_2+my_1}{\text{m + n}})$ (iii) $(\frac{mx_2+nx_1}{\text{m + n}},\frac{my_2+ny_1}{\text{m + n}})$

   (iv) $(\frac{mx_2-nx_1}{\text{m - n}},\frac{my_2-ny_1}{\text{m - n}})$

5. If the point $(3,(-\frac{9}{5}))$ divides the join of points $(6,0)$ and (x,y) in the ratio $3:7$, find (x,y)

   (i) $((-3),(-7))$ (ii) $((-5),(-5))$ (iii) $((-4),(-6))$ (iv) $((-2),(-4))$ (v) $((-6),(-8))$

6. Find the ratio in which point $((-1),\frac{7}{2})$ divides the join of points $((-4),5)$ and $(8,(-1))$

   (i) $1:6$ (ii) $0:3$ (iii) $2:3$ (iv) $1:0$ (v) $1:3$

7. One end of the diameter of a circle is $(7,(-8))$. If the centre is $(4,(-4))$, find the other end of the diameter

   (i) $(2,(-1))$ (ii) $((-1),(-2))$ (iii) $(0,1)$ (iv) $(1,0)$ (v) $(3,2)$

8. Find the coordinates of the points of trisection of the line segment joining the points $((-8),(-1))$ and $((-7),5)$

   (i) $((-\frac{23}{3}),1),((-\frac{22}{3}),3)$ (ii) $((-\frac{20}{3}),0),((-\frac{22}{3}),3)$ (iii) $((-\frac{17}{3}),3),((-\frac{22}{3}),3)$

   (iv) $((-\frac{29}{3}),(-1)),((-\frac{22}{3}),3)$ (v) $((-\frac{23}{3}),1),((-\frac{25}{3}),4)$

9. In what ratio is the join of $(6,4)$ and $((-2),(-1))$ divided by x-axis?

(i) 4:1 (ii) 7:3 (iii) 7:8 (iv) 3:1 (v) 5:1

10. In what ratio is the join of $(6,(-8))$ and $((-2),0)$ divided by y-axis?

(i) 5:8 (ii) 6:2 (iii) 6:0 (iv) 7:8 (v) 6:5

11. Two vertices of a triangle are $(1,(-6)),(1,2)$ and its centriod is $((-\frac{2}{3}),(-\frac{7}{3}))$. Find the coordinates of the third vertex of the triangle

(i) $((-4),(-3))$ (ii) $(4,3)$ (iii) $((-4),3)$ (iv) $((-3),(-4))$ (v) $(4,(-3))$

12. The centre of a circle is $((-\frac{1}{2}),2)$. Find the other end of the diameter whose one end point is $((-3),6)$

(i) $(2,(-2))$ (ii) $((-2),2)$ (iii) $(2,2)$ (iv) $((-2),(-2))$

13. The points B $((-1),9)$ and D $((-10),10)$ are the opposite vertices of a square ABCD. Find the other two vertices

(i) $((-4),7),((-5),14)$ (ii) $((-5),4),((-5),14)$ (iii) $((-6),5),((-5),14)$ (iv) $((-8),3),((-5),14)$

(v) $((-6),5),((-6),15)$

14. Find the coordinates of the midpoints of the sides of the quadrilateral formed by $((-2),3),(2,8),((-1),9)$ and $((-4),6)$

(i) $(0,\frac{11}{2}),(\frac{1}{2},\frac{17}{2}),((-\frac{5}{2}),\frac{15}{2}),((-3),\frac{9}{2})$ (ii) $(0,\frac{11}{2}),(\frac{1}{2},\frac{17}{2}),((-\frac{9}{2}),\frac{11}{2}),((-3),\frac{9}{2})$

(iii) $(0,\frac{11}{2}),(\frac{1}{2},\frac{17}{2}),((-\frac{5}{2}),\frac{15}{2}),((-4),\frac{11}{2})$ (iv) $(2,\frac{15}{2}),(\frac{1}{2},\frac{17}{2}),((-\frac{5}{2}),\frac{15}{2}),((-3),\frac{9}{2})$

(v) $(0,\frac{11}{2}),(\frac{1}{2},\frac{17}{2}),((-\frac{3}{2}),\frac{13}{2}),((-3),\frac{9}{2})$

15. Find the lengths of the medians of a triangle whose vertices are $(3,(-7)),(8,5)$ and $(0,0)$

(i) $\frac{13}{2},\frac{1}{2}\sqrt{89},\frac{1}{2}\sqrt{89}$ (ii) $\frac{1}{2}\sqrt{89},\frac{1}{2}\sqrt{58},\frac{13}{2}$ (iii) $\frac{1}{2}\sqrt{365},\frac{1}{2}\sqrt{458},\frac{5}{2}\sqrt{5}$

16. In what ratio is the join of $(3,(-7))$ and $(6,7)$ divided by the line $(-y+2)=0$?

(i) 9:2 (ii) 10:5 (iii) 9:8 (iv) 8:5 (v) 9:5

17. In what ratio is the join of $((-9),5)$ and $(8,0)$ divided by the line $(x+6)=0$?

(i) 2:14 (ii) 3:17 (iii) 3:12 (iv) 3:14 (v) 4:14

18. Three vertices of a parallelogram are $((-3),(-5)),(3,(-5))$ and $(7,(-2))$. Find the fourth vertex

(i) $(3,0)$ (ii) $((-1),(-4))$ (iii) $(2,(-3))$ (iv) $(1,(-2))$ (v) $(0,(-1))$

19. Find the centre of the circle, the endpoints of whose diameter are $((-6),0)$ and $((-7),(-1))$

(i) $((-\frac{13}{2}),(-\frac{1}{2}))$ (ii) $(\frac{13}{2},(-\frac{1}{2}))$ (iii) $((-\frac{1}{2}),(-\frac{13}{2}))$ (iv) $(\frac{13}{2},\frac{1}{2})$ (v) $((-\frac{13}{2}),\frac{1}{2})$

20. Determine the ratio in which the line $(-4y-4)=0$ divides the join of points $(1,(-3))$ and $(1,1)$

(i) 0:1 (ii) 1:1 (iii) 2:1 (iv) 1:-2 (v) 1:3

21. A and B are two points on the x-axis and y-axis respectively. If $(1,(-5))$ is the mid-point of the join of A and B, find A and B

(i) $(2,0),(0,(-10))$ (ii) $(0,(-2)),(0,(-10))$ (iii) $(4,2),(0,(-10))$ (iv) $(3,(-1)),(0,(-10))$

(v) $(2,0),((-1),(-9))$

22. If $A(2,(-1))$ and $B(7,5)$ are two points, find the coordinates of the point C on AB produced so that AC = 2BC

(i) $(13,10)$ (ii) $(11,12)$ (iii) $(12,11)$ (iv) $(10,9)$ (v) $(14,13)$

23. The mid-point of the join of points $(6,4)$ and $(2,(-4))$ is

(i) $(5,(-1))$ (ii) $(2,(-2))$ (iii) $(6,2)$ (iv) $(3,1)$ (v) $(4,0)$

24. Find the centroid of the triangle formed by the points $((-2),(-6)),((-5),(-8))$ and $((-7),4)$

(i) $((-\frac{11}{3}),(-\frac{13}{3}))$ (ii) $((-\frac{20}{3}),(-\frac{16}{3}))$ (iii) $((-\frac{14}{3}),(-\frac{10}{3}))$ (iv) $((-\frac{17}{3}),(-\frac{7}{3}))$ (v) $((-\frac{8}{3}),(-\frac{4}{3}))$

25. The coordinates of the origin are

(i) $(1,0)$ (ii) $(0,4)$ (iii) $(5,0)$ (iv) $(0,0)$ (v) $(1,1)$

26. The mid-point of the join of the points (x_1,y_1) and (x_2,y_2) is

(i) $(\frac{y_1-y_2}{2},\frac{x_1-x_2}{2})$ (ii) $(\frac{x_1+x_2}{2},\frac{y_1+y_2}{2})$ (iii) $(\frac{x_1+x_2}{3},\frac{y_1+y_2}{3})$ (iv) $(\frac{x_1-x_2}{3},\frac{y_1-y_2}{3})$

(v) $(\frac{x_1-x_2}{2},\frac{y_1-y_2}{2})$

27. The centroid of the triangle formed by the points $(x_1,y_1),(x_2,y_2)$ and (x_3,y_3) is

(i) $(\frac{x_1-x_2-x_3}{3},\frac{y_1-y_2-y_3}{3})$ (ii) $(\frac{x_1-x_2-x_3}{2},\frac{y_1-y_2-y_3}{2})$ (iii) $(\frac{y_1+y_2+y_3}{2},\frac{x_1+x_2+x_3}{2})$

(iv) $(\frac{x_1+x_2+x_3}{3},\frac{y_1+y_2+y_3}{3})$ (v) $(\frac{y_1-y_2-y_3}{2},\frac{x_1-x_2-x_3}{2})$

28. Find the point that bisects $((-3),8)$ and $(5,(-2))$

(i) $(3,5)$ (ii) $((-1),1)$ (iii) $(0,4)$ (iv) $(2,2)$ (v) $(1,3)$

29. If point $P((-3),\frac{5}{2})$ bisects $A(1,4)$ and $B(x,y)$, find (x,y)

(i) $((-8),2)$ (ii) $((-6),0)$ (iii) $((-9),(-1))$ (iv) $((-7),1)$ (v) $((-5),3)$

30. If point P(x,3) is equidistant from the points $(7,(-6))$ and $(8,(-4))$, find x

(i) $(\frac{-15}{2})$ (ii) $(\frac{-19}{2})$ (iii) -9 (iv) $(\frac{-33}{4})$ (v) $(\frac{-17}{2})$

31. The line $(-8x+6y-5)=0$ bisects which of the following pairs of points?

(i) $((-5),6),(5,(-5))$ (ii) $((-9),2),(5,(-5))$ (iii) $((-7),4),(4,(-4))$ (iv) $((-6),3),(5,(-5))$

(v) $((-7),4),(5,(-5))$

Assignment Key

1) (v)	2) (v)	3) (v)	4) (iii)	5) (iii)	6) (v)
7) (iv)	8) (i)	9) (i)	10) (ii)	11) (i)	12) (i)
13) (iii)	14) (i)	15) (iii)	16) (v)	17) (iv)	18) (iv)
19) (i)	20) (ii)	21) (i)	22) (iii)	23) (v)	24) (iii)
25) (iv)	26) (ii)	27) (iv)	28) (v)	29) (iv)	30) (v)
31) (v)					