EduSahara™ Assignment

Name : Geometric Figure Properties and Collinearity

Chapter : Distance and Section Formulae

Grade : ICSE Grade X

1. Find the area of the triangle formed by the points $(8,0),((-5),(-2))$ and $(1,2)$

   (i) 20 (ii) 21 (iii) 19 (iv) 23 (v) 18

2. Find the perimeter of the triangle formed by the points $((-3),(-8)),(0,(-4))$ and $((-6),1)$

   (i) $(5+\sqrt{64}+3\sqrt{10})$ (ii) $(5+\sqrt{61}+30)$ (iii) $(5+\sqrt{58}+3\sqrt{10})$ (iv) $(5+\sqrt{61}+3\sqrt[4]{10})$ (v) $(5+\sqrt{61}+3\sqrt{10})$

3. Find the lengths of the sides of the triangle formed by the points $((-1),(-6)),((-3),(-2))$ and $((-7),(-4))$

   (i) $2\sqrt[4]{5}, 2\sqrt{5}, 2\sqrt{10}$ (ii) $2\sqrt{5}, 10, 2\sqrt{10}$ (iii) $2\sqrt{5}, 2\sqrt{5}, 2\sqrt{13}$ (iv) $2\sqrt{5}, 2\sqrt{5}, 2\sqrt{10}$

4. The points $((-2),1),(5,(-5))$ and $((\frac{3}{2}+3\sqrt{3}),(-2+\frac{7}{2}\sqrt{3}))$ represent

   (i) right angled triangle (ii) isosceles triangle (iii) equilateral triangle (iv) scalene triangle

5. The points $((-8),(-7)),(8,(-3))$ and $((-\frac{7}{2}),9)$ represent

   (i) collinear points (ii) isosceles triangle (iii) scalene triangle (iv) right angle triangle

   (v) equilateral triangle

6. The points $((-1),(-6)),(3,(-2)),(7,(-6))$ and $(3,(-10))$ represent

   (i) rhombus (ii) square (iii) parallelogram (iv) rectangle (v) trapezium

7. The points $((-5),(-3)),(2,(-3)),(4,2)$ and $((-3),2)$ represent

   (i) rhombus (ii) square (iii) rectangle (iv) trapezium (v) parallelogram

8. The points $((-2),(-1)),(4,(-1)),(4,3)$ and $((-2),3)$ represents

   (i) square (ii) rectangle (iii) parallelogram (iv) rhombus (v) trapezium

9. The points $((-8),(-1)),(5,5)$ and $((-8),4)$ represent

   (i) collinear points (ii) right angle triangle (iii) isosceles triangle (iv) scalene triangle

   (v) equilateral triangle

10. The points $((-3),(-1)),(1,3)$ and $(5,(-1))$ represent

    (i) scalene triangle (ii) isosceles right angled triangle (iii) equilateral triangle (iv) collinear points

    (v) right angle triangle

11. The points $((-1),(-5)),(6,(-5))$ and $(6,(-1))$ represent

    (i) isosceles right angled triangle (ii) scalene triangle (iii) equilateral triangle (iv) right angle triangle

    (v) collinear points

12. The points $((-5),(-6)),(1,(-9)),(7,(-6))$ and $(1,(-3))$ represent

(i) trapezium (ii) parallelogram (iii) rhombus (iv) square (v) rectangle

13. The points $(2,(-7)),((-2),7)$ and $((-\frac{2}{15}),\frac{7}{15})$ represents

(i) equilateral triangle (ii) isoceles triangle (iii) right angle triangle (iv) collinear points

14. Find the value of k such that the points $((-5),(-3)),((-5),1)$ and $(k,9)$ are collinear

(i) -8 (ii) -5 (iii) -2 (iv) -4 (v) -6

15. Find the value of k such that the points $((-5),0),(\frac{9}{11},\frac{56}{11})$ and $(3,k)$ are collinear

(i) 10 (ii) 4 (iii) 6 (iv) 8 (v) 7

16. Two vertices of a triangle are $(4,(-2)),(3,7)$ and its centriod is $(\frac{10}{3},\frac{10}{3})$

. Find the coordinates of the third vertex of the triangle

(i) $(3,(-5))$ (ii) $((-3),(-5))$ (iii) $(3,5)$ (iv) $(5,3)$ (v) $((-3),5)$

17. The points $B(3,0)$ and $D((-6),1)$ are the opposite vertices of a square ABCD. Find the other two vertices

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

(v) $((-2),(-4)),((-1),5)$

18. Find the coordinates of the midpoints of the sides of the quadrilateral formed by $((-5),3),((-2),8),((-6),9)$ and $((-8),7)$

(i) $((-\frac{7}{2}),\frac{11}{2}),((-4),\frac{17}{2}),((-7),8),((-\frac{15}{2}),6)$ (ii) $((-\frac{7}{2}),\frac{11}{2}),((-4),\frac{17}{2}),((-7),8),((-\frac{13}{2}),5)$

(iii) $((-\frac{7}{2}),\frac{11}{2}),((-4),\frac{17}{2}),((-9),6),((-\frac{13}{2}),5)$ (iv) $((-\frac{3}{2}),\frac{15}{2}),((-4),\frac{17}{2}),((-7),8),((-\frac{13}{2}),5)$

(v) $((-\frac{7}{2}),\frac{11}{2}),((-4),\frac{17}{2}),((-6),7),((-\frac{13}{2}),5)$

19. Find the lengths of the medians of a triangle whose vertices are $(4,(-4)),(8,(-1))$ and $(0,(-2))$

(i) $\frac{5}{2},2\sqrt{10},\frac{1}{2}\sqrt{145}$ (ii) $\frac{5}{2},\frac{1}{2}\sqrt{65},\frac{1}{2}\sqrt{65}$ (iii) $\frac{1}{2}\sqrt{65},\sqrt{5},\frac{5}{2}$

20. Find the area of the quadrilateral formed by $((-3),5),(3,11),((-5),13)$ and $((-5),10)$

(i) 32 (ii) 33 (iii) 31 (iv) 35 (v) 34

21. Three vertices of a parallelogram are $((-6),(-6)),(0,(-6))$ and $(3,(-1))$. Find the fourth vertex

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

22. Find the coordinates of the orthocentre of the triangle whose vertices are $(1,0),(8,(-8))$ and $((-4),(-4))$

(i) $((-\frac{14}{17}),(-\frac{25}{17}))$ (ii) $(\frac{3}{17},\frac{26}{17})$ (iii) $(\frac{20}{17},\frac{9}{17})$ (iv) $(\frac{37}{17},(-\frac{8}{17}))$ (v) $(\frac{54}{17},\frac{43}{17})$

23. Find the coordinates of the circumcentre of the triangle whose vertices are $((-5),8),(3,(-6))$ and $(7,(-7))$

(i) $(\frac{99}{16},\frac{17}{4})$ (ii) $(\frac{131}{16},\frac{25}{4})$ (iii) $(\frac{147}{16},\frac{21}{4})$ (iv) $(\frac{163}{16},\frac{33}{4})$ (v) $(\frac{115}{16},\frac{29}{4})$

24. Find the centre of the circle passing through the points $((-5),6),(5,7)$ and $((-2),(-3))$

(i) $(\frac{85}{62},\frac{111}{62})$ (ii) $(\frac{23}{62},\frac{173}{62})$ (iii) $((-\frac{101}{62}),\frac{49}{62})$ (iv) $((-\frac{39}{62}),\frac{235}{62})$ (v) $(\frac{147}{62},\frac{297}{62})$

25. Find the circumradius of the triangle whose vertices are $(1,(-6)),((-5),(-2))$ and $((-5),4)$

(i) $\frac{1}{3}\sqrt{445}$ (ii) $\frac{1}{3}\sqrt{442}$ (iii) $\frac{442}{3}$ (iv) $\frac{1}{3}\sqrt[4]{442}$ (v) $\frac{1}{3}\sqrt{440}$

26. Find the radius of the circle passing through the points $(8,4),(2,(-1))$ and $((-5),(-3))$

(i) $\frac{1}{46}\sqrt[4]{704794}$ (ii) $\frac{352397}{23}$ (iii) $\frac{1}{46}\sqrt{704794}$ (iv) $\frac{1}{46}\sqrt{704791}$ (v) $\frac{1}{46}\sqrt{704796}$

27. Find the point which is equidistant from the points $((-2),(-5)),(7,2)$ and $(1,(-3))$

(i) $((-\frac{175}{6}),\frac{79}{2})$ (ii) $((-\frac{169}{6}),\frac{85}{2})$ (iii) $((-\frac{181}{6}),\frac{81}{2})$ (iv) $((-\frac{193}{6}),\frac{77}{2})$ (v) $((-\frac{187}{6}),\frac{83}{2})$

28. Find the relation between x and y if the points $(x,y),((-1),(-7))$ and $(7,(-6))$ are collinear

(i) $(-2x+10y+74)=0$ (ii) $(x-8y-55)=0$ (iii) $(9x+9)=0$ (iv) $(-10x+2y-14)=0$ (v) $(8x+8y-8)=0$

29. Which of the following sets of points are collinear?

(i) $(0,5),((-5),3),(7,(-5))$ (ii) $((-2),8),((-7),1),((-4),(-5))$ (iii) $((-2),(-1)),(0,6),(0,(-3))$

(iv) $((-6),1),(7,(-8)),(\frac{121}{8},(-\frac{109}{8}))$ (v) $((-8),6),(8,1),(2,6)$

30. Find the relation between x and y such that the point $P(x,y)$ is equidistant from points $((-7),(-8))$ and $((-4),(-5))$

(i) $(3x+5y+36)=0$ (ii) $(3x+3y+36)=0$ (iii) $(15x-17y-7)=0$ (iv) $(15x-14y-7)=0$

(v) $(2x+3y+36)=0$

Assignment Key

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