



# MATHS

## BOOKS - TARGET PUBLICATION

### CO-ORDINATE GEOMETRY

#### Example

1. In the figure, some points on lines  $l$ ,  $t$  and  $n$  are given. Find the slopes of those lines. Observe the type of

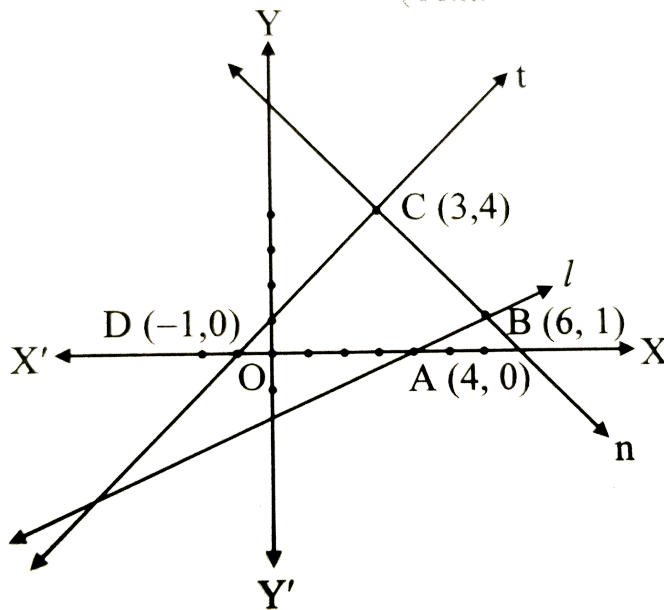
angles made by these

lines with the positive direction of X-axis and

try to find a relation

between the type of angle and sign of the

slope.



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## Practice Set 5 1

1. Find the distance between each of the following pairs of the points: A(2,3), B(4,1)



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2. Find the distance between each of the following pairs of points .

P (-5,7) ,Q(-1,3)



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3. Find the distance between each of the following pairs of the points. (iii)  $R(0,-3)$ ,  $S(0,5/2)$



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4. Find the distance between each of the following pairs of the points. (iv)  $L(5,-8)$ ,  $M(-7,-3)$



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5. Find the distance between each of the following pairs of the points.(v)  $T(-3,6)$ ,  $R(9,-10)$



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6. Find the distance between each of the following pairs of the points.(vi)  $W(-7/2,4)$ ,  $X(11,4)$



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7. Determine whether the points are collinear.

(i)  $A(1,-3)$ ,  $B(2,-5)$  and  $C(-4,7)$



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8. Determine whether the points are collinear.

(ii)  $L(-2,3)$ ,  $M(1,-3)$ ,  $N(5,4)$



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**9.** Determine whether the points are collinear.

(iii)  $R(0,3), D(2,1)$  and  $S(3,-1)$



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**10.** Determine whether the points are collinear.

(iv)  $P(-2,3), Q(1,2), R(4,1)$



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**11.** Find the point on X-axis which is equidistant from A(-3,4) and B(1,-4)



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**12.** Verify that points P(-2,2), Q(2,2) and R(2,7) are vertices of a right angled triangle.



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**13.** Show that points  $P(2,-2)$ ,  $Q(7,3)$ ,  $R(11,-1)$  and  $S(6,-6)$  are the vertices of a parallelogram.



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**14.**  $A(-4,-7)$ ,  $B(-1,2)$ ,  $C(8,5)$  and  $D(5,-4)$  are the vertices of rhombus ABCD.



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**15.** Find  $x$ , if distance between points  $L(x,7)$  and  $M(1,15)$  is 10.



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**16.** Show that the points  $A(1,2)$ ,  $B(1,6)$  and  $C(1+2\sqrt{3},4)$  are the vertices of an equilateral triangle.



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1. Find the co-ordinates of point P if P divides the line segment joining the points A(-1,7) and B(4,-3) in the ratio 2:3.



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2. In each of the following examples find the co-ordinates of point A which divides segment PQ in the ratio a:b. (i) P(-3,7), Q(1,-4), a:b=2:1.



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3. In each of the following examples find the co-ordinates of point A which divides segment PQ in the ratio a:b. (ii)  $P(-2,-5)$ ,  $Q(4,3)$ ,  $a:b=3:4$ .



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4. In each of the following examples find the co-ordinates of point A which divides segment PQ in the ratio a:b. (ii)  $P(-2,-5)$ ,  $Q(4,3)$ ,  $a:b=3:4$ .



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5. Find the ratio in which point  $T(-1,6)$  divides the line segment joining the points  $P(-3,10)$  and  $Q(6,-8)$ .



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6. Point  $P$  is the centre of the circle and  $AB$  is a diameter. Find the co-ordinates of point  $B$  if co-ordinates of point  $A$  and  $P$  are  $(2,-3)$  and  $(-2,0)$  respectively.



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7. Find the ratio in which point  $P(k,7)$  divides the segment joining  $A(8,9)$  and  $B(1,2)$ . Also find  $k$ .



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8. Find the coordinates of the midpoint of the segment joining the points  $(22,20)$  and  $(0,16)$ .



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**9.** In each of the following vertices of a triangle are given. Find the coordinates of centroid of each triangle (i)  $(-7,6)$ ,  $(2,-2)$ ,  $(8,5)$



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**10.** Find the coordinates of centroid of a triangle whose vertices are  $(3, -5)$ ,  $(4,3)$ ,  $(11-4)$ ,



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**11.** In each of the following vertices of a triangle are given. Find the coordinates of centroid of each triangle (iii)  $(4,7),(8,4),(7,11)$ .



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**12.** In  $\triangle ABC$ ,  $G(-4,-7)$  is the centroid of  $\triangle ABC$ . If  $A(-14,-19)$  and  $B(3,5)$ , then find coordinates of  $C$ .



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13.  $A(h,-6), B(2,3)$  and  $C(-6,k)$  are the co-ordinates of vertices of a triangle whose centroid is  $G(1,5)$ . Find  $h$  and  $k$ .



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14. Find the co-ordinates of points of trisection of the line segment  $AB$  with  $A(2,7)$  and  $B(-4,-8)$ .



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**15.** If  $A(-14,-10), B(6,-2)$  is given, find the coordinates of the points which divide segment AB into four equal parts.



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**16.** If  $A(20,10), B(0,20)$  are given, find the coordinates of the points which divide segment AB into five congruent parts.



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## Practice Set 5 3

1. Angles made by the line with the positive direction of X-axis are given. Find the slope of these lines (i)  $45^\circ$



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2. Angles made by the line with the positive direction of X-axis are given. Find the slope of these lines (ii)  $60^\circ$



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3. Angles made by the line with the positive direction of X-axis are given. Find the slope of these lines(iii)  $90^\circ$



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4. Find the slope of line passing through the given points. (i) A(2,3) and B(4,7)



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5. Find the slope of line passing through the given points. (ii)  $P(-3,1)$  and  $Q(5,-2)$



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6. Find the slope of line passing through the given points.(iii)  $C(5,-2)$  and  $D(7,3)$



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7. Find the slope of line passing through the given points.(iv) L(-2,-3) and M(-6,-8).



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8. Find the slope of line passing through the given points.(v) E(-4,-2) and F(6,3).



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9. Find the slope of line passing through the given points.(vi) T(0,-3) and S(0,4).



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10. Determine whether following points are collinear.(i) A(-1,-1),B(0,1),C(1,3)



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**11.** Determine whether following points are collinear.(ii)  $D(-2,-3), E(1,0), F(2,1)$



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**12.** Determine whether following points are collinear.(iii)  $L(2,5), M(3,3), N(5,1)$



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**13.** Determine whether following points are collinear.(iv)  $P(2,-5), Q(1,-3), R(-2,3)$



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**14.** Determine whether following points are collinear.(v)  $R(1,-4), S(-2,2), T(-3,4)$ .



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**15.** Determine whether following points are collinear.(vi)  $A(-4,4), K(-2,5/2), N(4,-2)$ .



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**16.** If  $A(1,-1), B(0,4), C(-5,3)$  are vertices of a triangle, then find the slope of each side.



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**17.** Show that  $A(-4,-7)$ ,  $B(-1,2)$ ,  $C(8,5)$  and  $D(5,-4)$  are the vertices of a parallelogram.



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**18.** Find  $k$ , if  $R(1,-1)$ ,  $S(-2,k)$  and slope of line  $RS$  is  $-2$ .



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19. Find  $k$ , if  $B(k,-5), C(1,2)$  and slope of the line is 7.



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20. Find  $k$ , if  $PQ \parallel RS$  and  $P(2,4), Q(3,6), R(3,1)$  and  $S(5,k)$ .



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Problem Set 5

1. Seg AB is parallel to Y-axis and co-ordinates of point A are (1,3), then co-ordinates of point B can be.....a) (3,1) b) (5,3) c) (3,0) d) (1,-3)

A. (3,1)

B. (5,3)

C. (3,0)

D. (1,-3)

**Answer: D**



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2. Out of the following, point.....lies to the right of the origin on X-axis. a) (-2,0) b) (0,2) c) (2,3) d) (2,0)

A. (-2,0)

B. (0,2)

C. ( 2,3)

D. (2,0)

**Answer: D**



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3. Distance of point  $(-3,4)$  from the origin is.....a) 7 b) 1 c) 5 d) -5

A. 7

B. 1

C. 5

D. -5

**Answer: C**



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4. A line makes an angle of  $30^\circ$  with the positive direction of X-axis. so the slope of the line is..... a)  $\frac{1}{2}$  b)  $\frac{\sqrt{3}}{2}$  c)  $\frac{1}{\sqrt{3}}$  d)  $\sqrt{3}$

A.  $\frac{1}{2}$

B.  $\frac{\sqrt{3}}{2}$

C.  $\frac{1}{\sqrt{3}}$

D.  $\sqrt{3}$

**Answer: C**



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5. Determine whether the given points are collinear.(i)  $A(0,2), B(1,-0.5), C(2,-3)$



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6. Determine whether the given points are collinear.(ii)  $P(1,2), Q(2,8/5), R(3,6/5)$ .



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7. Determine whether the given points are collinear.(iii)  $L(1,2), M(5,3), N(8,6)$ .



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8. Find the coordinates of the midpoint of the line segment joining  $P(0,6)$  and  $Q(12,20)$ .



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**9.** Find the ratio in which the line segment joining the points  $A(3,8)$  and  $B(-9,3)$  is divided by the Y-axis.



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**10.** Find a point on X-axis which is equidistant from  $P(2,-5)$  and  $Q(-2,9)$ .



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**11.** Find the distance between the following pairs of points (i)  $A(a,0), B(0,a)$ .



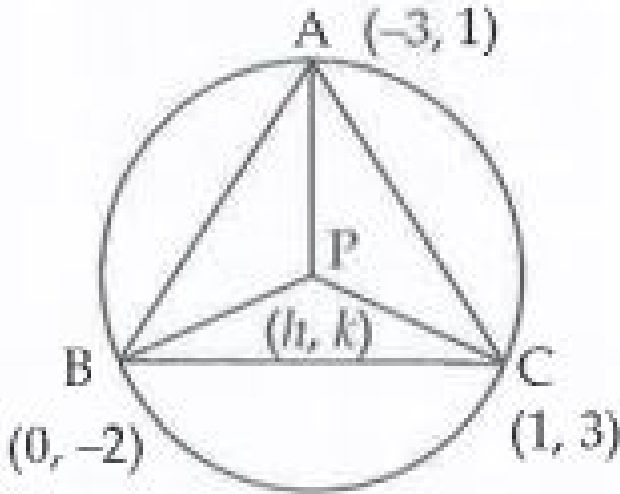
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**12.** Find the distance between the following pairs of points (iii)  $R(-3a,a), S(a,-2a)$



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**13.** Find the coordinates of circumcentre of a triangle whose vertices are  $(-3,1)$ ,  $(0,-2)$  and  $(1,3)$ .



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**14.** In the following example, can the segment joining the given points form a triangle? If

triangle is formed, state the type of the triangle considering sides of the triangle.

$L(6,4), M(-5,-3), N(-6,8)$ .



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**15.** In the following examples, can the segment joining the given points form a triangle? If triangle is formed, state the type of the triangle considering sides of the triangle.

(ii)  $P(-2,-6), Q(-4,-2), R(-5,0)$ .



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**16.** In the following examples , can the segment joining the given points form a triangle ? If triangle is formed , state the type of the triangle considering sides of the triangle.

(iii)

A

$$(\sqrt{2}, \sqrt{2}), B(-\sqrt{2}, -\sqrt{2}), C(-\sqrt{6}, \sqrt{6})$$



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**17.** Find  $k$ , if the line passing through points  $P(-12,-3)$  and  $Q(4,k)$  has slope  $\frac{1}{2}$ .



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**18.** Show that the line joining the points  $A(4,8)$  and  $B(5,5)$  is parallel to the line joining the points  $C(2,4)$  and  $D(1,7)$ .



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**19.** Show that the points  $P(1,-2)$ ,  $Q(5,2)$ ,  $R(3,-1)$ ,  $S(-1,-5)$  are the vertices of a parallelogram.



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**20.** Show that the points  $P(2,1)$ ,  $Q(-1,3)$ ,  $R(-5,-3)$

and

$S(-2,-5)$  are the vertices of a rectangle.



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21. Find the lengths of the medians of a triangle whose vertices are  $A(-1, 1)$ ,  $B(5, -3)$  and  $C(3, 5)$ .



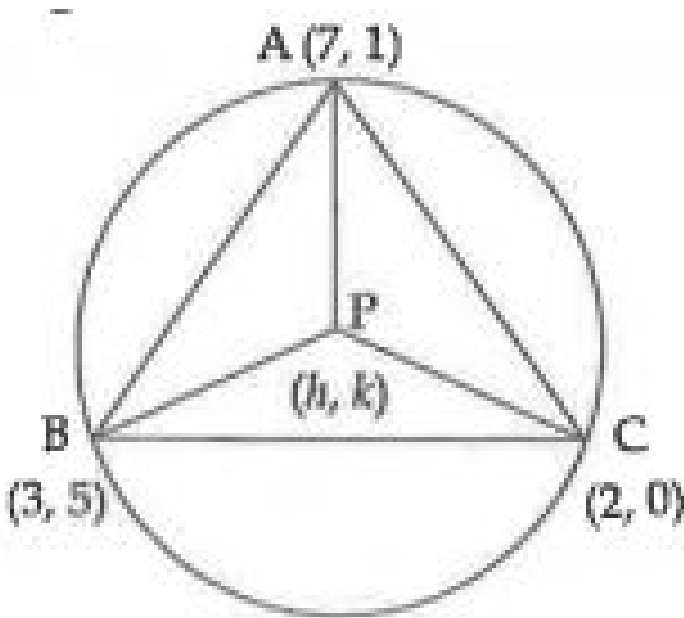
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22. Show that  $A(4,-1)$ ,  $B(6,0)$ ,  $C(7,-2)$  and  $D(5,-3)$  are vertices of a square.



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23. Find the co-ordinates of circumcentre and radius of a circumcircle of  $\triangle ABC$ , if  $A(7,1)$ ,  $B(3,5)$  and  $C(2,0)$  are given.



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**24.** Given  $A(4,-3)$ ,  $B(8,5)$ . Find the co-ordinates of the point that divides segment  $AB$  in the ratio  $3:1$ .



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**25.** Find the type of the quadrilateral, if point  $A(-4, -2)$ ,  $B(-3, -7)$ ,  $C(3, -2)$  and  $D(2, 3)$  are joined serially.



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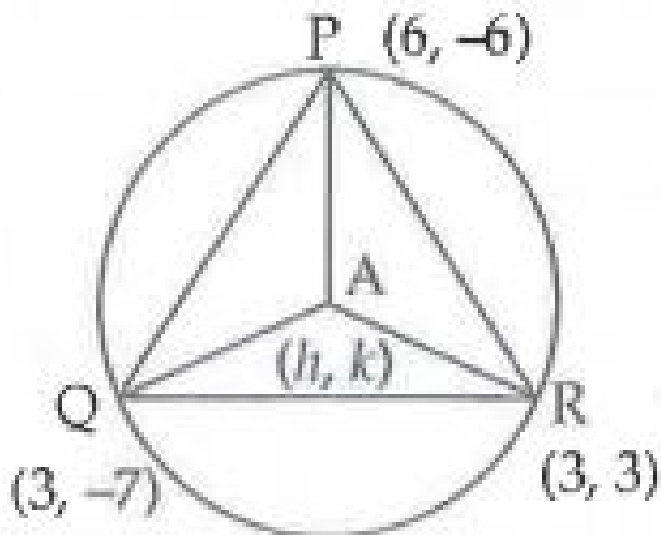
**26.** The line segment  $AB$  is divided into five congruent parts at  $P, Q, R$  and  $S$  such that  $A-P-Q-R-S-B$ . If point  $Q(12,14)$  and  $S(4,18)$  are given, find the co-ordinates of  $A, P, R, B$ .



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**27.** Find the co-ordinates of the center of the circle passing through the point.  $P(6,-6), Q(3,-7)$

and  $R(3,3)$ .



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**28.** Find the possible pairs of co-ordinates of the fourth vertex  $D$  of the parallelogram if

three of its vertices are A (5,6) , B (1,-2) and C (3,-2) .



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**29.** Find the slope of the diagonals of a quadrilateral with vertices A(1,7), B(6,3), C(0,-3) and D(-3,3).



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**Activities For Practice**

1. Find the point on X-axis which is equidistant from A(-3,4) and B(1,-4)



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2. Find k, if the line passing through points P(-12,-3) and Q(4,k) has slope  $\frac{1}{2}$ .



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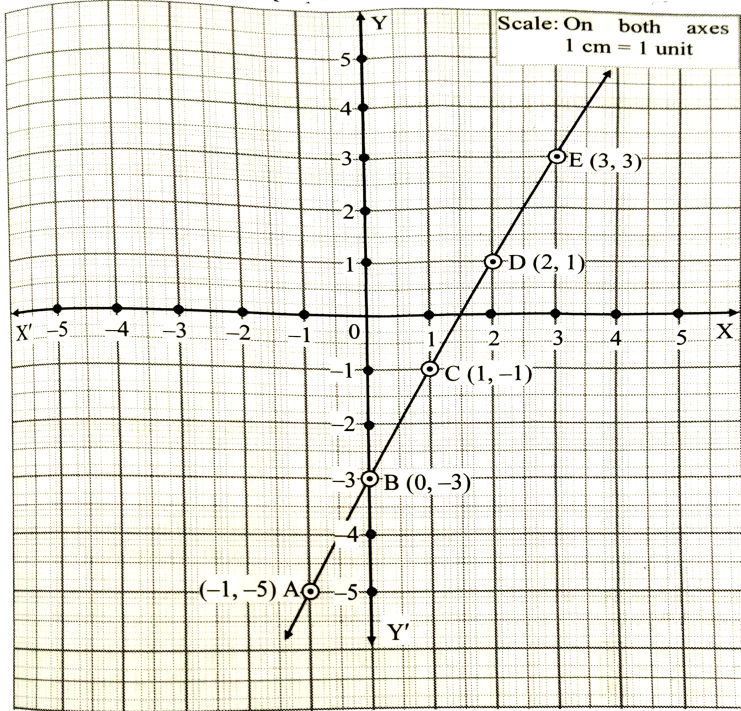


3. Show that  $A(-4,-7)$ ,  $B(-1,2)$ ,  $C(8,5)$  and  $D(5,-4)$  are the vertices of a parallelogram.



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4. Complete the table below the graph with the help of the following graph.



Sr. No.	First point	Second point	Co-ordinates of first point $(x_1, y_1)$	Co-ordinates of second point $(x_2, y_2)$	$\frac{y_2 - y_1}{x_2 - x_1}$
1	C	E	(1, -1)	(3, 3)	<input type="text"/>
2	A	B	(-1, -5)	(0, -3)	<input type="text"/>
3	B	D	(0, -3)	(2, 1)	<input type="text"/>



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Multiple Choice Questions

1. The distance of the point  $(4,3)$  from the X - axis is

A. (a) 2

B. (b) 3

C. (c) 4

D. (d) 5

**Answer: B**



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2. The distance of the points (8,6) from the origin is

A. (a) 8

B. (b) 4

C. (c) 10

D. (d) 6

**Answer: C**



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3. The distance between points A (6,0) and B(0,8) is

A. (a) 14 units

B. (b) 2 units

C. (c) 10 units

D. (d) 7 units

**Answer: C**



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4. If the distance between A (h,12) and origin is 13 units, then the value of h is are

A. (a)  $\pm 5$

B. (b) 4

C. (c)  $\pm 3$

D. (d) 2

**Answer: A::C**



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5. The point on x-axis which is equidistant from points

A (-1, 0) and B(5, 0) is

A. (a) (0, 2)

B. (b) (2, 0)

C. (c) (3, 0)

D. (d) (0, 3)

**Answer: B**



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6. If the points  $(-4,0)$  and  $(4,8)$  are equidistant from point  $(0,k)$ ,  
find the value of  $k$ .

A. (a)  $\pm 4$

B. (b)  $-4$

C. (c)  $4$

D. (d)  $0$

**Answer: C**



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7. If the point  $(x,y)$  is equidistant from  $(7,1)$  and  $(3,5)$ , then

A. (a)  $x + y = 2$

B. (b)  $x - y = 2$

C. (c)  $y = x + 2$

D. (d)  $x + y = -2$

**Answer: B**



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8. The perimeter of a triangle with vertices  $(0,3)$ ,  $(0,0)$  and  $(4,0)$  is

A. (a) 5

B. (b) 12

C. (c) 9

D. (d) 16

**Answer: B**



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9. ABCD is a rectangle whose three vertices are A (0,4) B (0,0) and C (3,0) . The length of its diagonal is

A. 5

B. 3

C. 6

D. 4

**Answer: A**



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10. The points  $(-4,0)$ ,  $(4,0)$  and  $(0,3)$  are the vertices of a

A. (a) a right angled triangle

B. (b) an isosceles triangle

C. (c) an equilateral triangle

D. (d) an scalene triangles

**Answer: B**



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11. Which of the points A (1,2), B (-2,2) , C (-3,-4) and D (4,-1) is nearest to the origin ?

A. (a) A

B. (b) B

C. (c) C

D. (d) D

**Answer: A**



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**12.** The co-ordinates of point which divides the segment joining

A (0,4) and B (6,0) in the ratio 1 :2 are

A. (a)  $\left(\frac{3}{8}, \frac{1}{2}\right)$

B. (b)  $\left(\frac{1}{2}, \frac{3}{8}\right)$

C. (c)  $\left(2, \frac{8}{3}\right)$

D. (d)  $\left(\frac{8}{3}, 2\right)$

**Answer: C**



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**13.** If point P (1,1) divides line segment joining the points A and B (-1,-1) in the ratio 5: 2 , then co-ordinates of A are

A. (a) (3,3)

B. (b) (6,6)

C. (c) (2,2)

D. (d) (1,1)

**Answer: B**



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14. The point which divides the line segment joining the points  $(5,4)$  and  $(-13,1)$  in the ratio  $2:1$  lies in the

- A. (a) I quadrant
- B. (b) II quadrant
- C. (c) III quadrant
- D. (d) IV quadrant

**Answer: B**





15. The ratio in which X -axis divides the segment joining  $(-4,3)$  and  $(2,-6)$  is

A. (a) 1 : 2

B. (b) 2 : 1

C. (c) 1 : 3

D. (d) 3 : 1

**Answer: A**



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16. The line segment joining the points  $(-1,-2)$  and  $(2,8)$  is divided by Y-axis in the ratio

A. 2 : 1

B. 1 : 2

C. 2 : 3

D. 3 : 2

**Answer: B**



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17. The co-ordinates of the midpoint of segment joining

A (3,4) and B (5,-2) are .....

A. (1,4)

B. (4,3)

C. (1,3)

D. (4,1)

**Answer: D**



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**18.** If the line joining A (3,3) and a point B has midpoint at origin,  
then co-ordinates of B are

A. (3,-3)

B. (-3,-3)

C. (-3,3)

D. (0,0)

**Answer: B**



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19. If  $(5,6)$  is the midpoint of the line segment joining  $(6,5)$  and  $(4,k)$ , then the value of  $k$  is

A. 5

B. 6

C. 7

D. 8

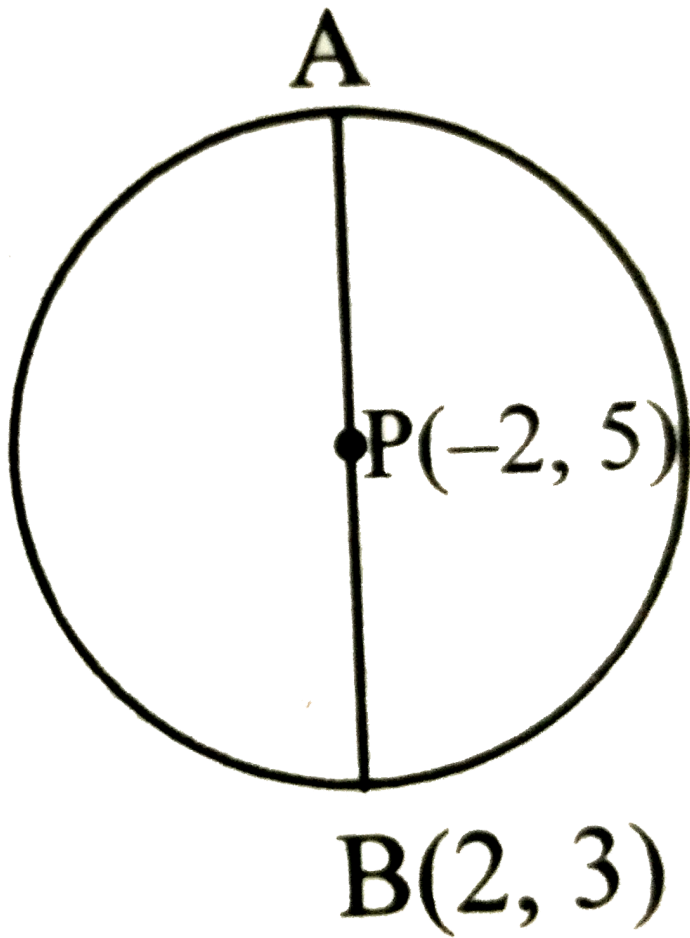
**Answer: C**



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**20.** In the figure , point P is the centre of the circle and AB is

the diameter. The co-ordinates of A are



A. (6,7)

B. (-6,7)

C. (6,3)

D. (-6,3)

**Answer: B**



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21. If P (5,-3) and Q(3,y) are the points of trisection of the line segment joining the points A (7,-2) and B (1,-5) . then y equals?

A. 2



B. 4

C. -4

D. -6

**Answer: C**



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**22.** The point which lies on the perpendicular bisector of the line segment joining the points  $A(-2,-5)$  and  $B(2,5)$  is

A. (0,0)

B. (0,2)

C. (2,0)

D. (-2,0)

**Answer: A**



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**23.** If  $A(4, 9)$ ,  $B(2, 3)$  and  $C(6, 5)$  are the vertices of  $ABC$ ,

then the length of median through  $C$  is

A.  $\sqrt{5}$

B.  $\sqrt{10}$

C. 25

D. 10

**Answer: B**



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**24.** In  $\triangle PQR$ ,  $G(6,-2)$  is the centroid. If  $P(3,-5)$  and  $Q(11,-4)$ ,

then co-ordinates of  $R$  are

A. (3,4)

B. (4,3)

C. (-3,4)

D. (4,-3)

**Answer: B**



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**25.** In A (h,-5) , B (-1,-6) and C (4,k) are the coordinates of vertices

of  $\triangle ABC$  whose centroid is  $G(2, -4)$ , then the value of  $k$  is

A.

B.

C.

D.

**Answer:**



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**26.** The slope of the line parallel to Y-axis

A. (a) is 0

B. (b) is 1

C. (c) is -1

D. (d) cannot be determined

**Answer: D**



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27. Write the slope of the line which makes an angle of  $60^\circ$

with positive direction of X-axis .

A.  $\frac{1}{2}$

B.  $\sqrt{3}$

C.  $\frac{1}{\sqrt{3}}$

D.  $\frac{1}{\sqrt{2}}$

**Answer: B**



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28. If the slope of a line is  $\sqrt{3}$ , the angle made by the line with the positive direction of X-axis is \_ \_ \_ \_ \_

A.  $30^\circ$

B.  $45^\circ$

C.  $60^\circ$

D.  $90^\circ$

**Answer: C**

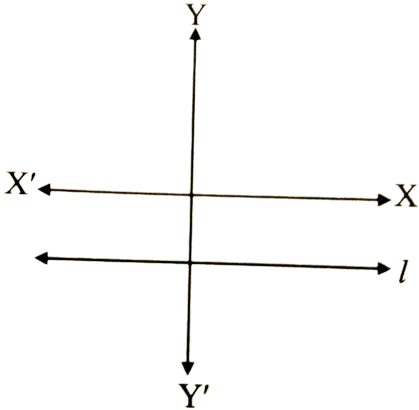


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29. In the figure , line  $l$  is parallel to  $X$  -axis .

Which of the following statement is true ?



- A. (a) The slope is zero .
- B. (b) The slope cannot be determined .
- C. (c) The slope is positive.
- D. (d) The slope is negative.

**Answer: A**



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**30.** The slope of the line passing through the points  $(5,-2)$  and  $(-3,-6)$  is .....

A. 2

B. -2

C.  $\frac{1}{2}$

D.  $-\frac{1}{2}$

**Answer: C**



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**31.** If the slope of the line joining the points  $(k,-3)$  and  $(-6,-8)$  is  $\frac{5}{4}$ , then the value of  $k$  is

A. (a) 2

B. (b)  $-2$

C. (c) 3

D. (d)  $-3$

**Answer: B**



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**32.** The line joining the points  $(1,-5)$  and  $(4,-3)$  is parallel to the line joining the points .

- A. (a)  $(2, 0)$  and  $(0, -3)$
- B. (b)  $(-2, 0)$  and  $(0, -3)$
- C. (c)  $(-3, 0)$  and  $(0, -2)$
- D. (d)  $(-3, 0)$  and  $(0, 2)$

**Answer: D**



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**33.** If the points  $(k, 2k)$ ,  $(3k, 3k)$  and  $(3, 1)$  are collinear, then  $k$

(a)  $\frac{1}{3}$  (b)  $-\frac{1}{3}$  (c)  $\frac{2}{3}$  (d)  $-\frac{2}{3}$

A.  $-\frac{1}{2}$

B.  $\frac{1}{2}$

C.  $\frac{-1}{7}$

D.  $\frac{1}{7}$

**Answer: B**



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## Additional Problems For Practice

1. Using distance formula, show that the points  $(1, 5)$ ,  $(2, 4)$  and  $(3, 3)$  are collinear.



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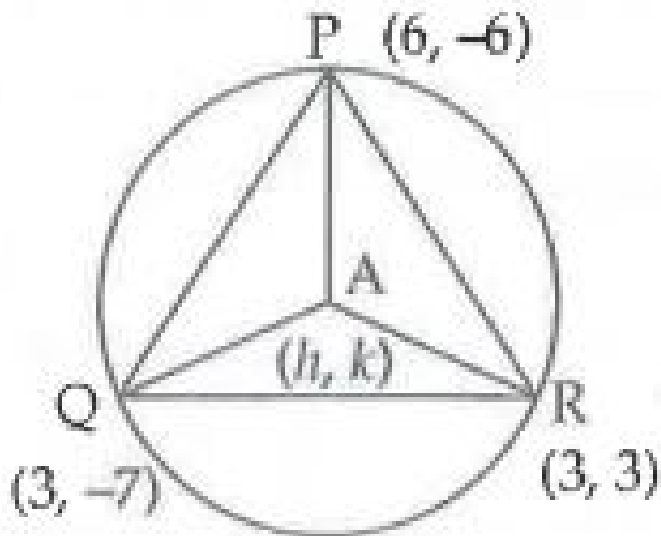
2. Show that point  $P(-3, 2)$ ,  $Q(1, -2)$  and  $R(9, -10)$  are collinear



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3. Find the co-ordinates of the center of the circle passing through the point.  $P(6,-6), Q(3,-7)$

and  $R(3,3)$ .



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4. Find the value of  $y$  if the distance between the points

$A(2, -2)$  and  $B(-1, y)$  is 5.





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5. Show that point  $(5,3)$  is equidistant from the points  $(1,1)$  and  $(3,-1)$



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6. Find the co-ordinates of a point on Y-axis which is equidistant from  $M(-5,-2)$  and  $N(3,4)$



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7. If point  $(x, y)$  is equidistant from points  $(7, 1)$  and  $(3, 5)$  show that  $y = x - 2$



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8. Find the relation between  $x$  and  $y$ , such that the point  $(x, y)$  is equidistant from points  $(-1, 8)$  and  $(3, 4)$



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**9.** Show that the points  $A(1,2), B(4,3), C(1,0)$  and  $D(-2,-1)$  are the vertices of a parallelogram.



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**10.** If  $P(-2, 4), Q(4, 8), R(10, 5)$  and  $S(4, 1)$  are the vertices of a quadrilateral, show that it is a parallelogram.



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**11.** Show that points  $(1,7)$ ,  $(4,2)$ ,  $(-1,-1)$  and  $(-4,4)$  are vertices of a square.



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**12.** Show that  $A(4,-1)$ ,  $B(6,0)$ ,  $C(7,-2)$  and  $D(5,-3)$  are vertices of a square.



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**13.** Show that the points  $P(0,2)$   $Q(3,-1)$   $R(-2,-6)$  and  $S(-5,-3)$  are the vertices of a rectangle.



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**14.**  $A(-3, -4)$ ,  $B(-5, 0)$ ,  $C(3, 0)$  are the vertices of  $\triangle ABC$ . Find the co-ordinates of the circumcenter of  $\triangle ABC$ .



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15. If  $A(2, 7)$ ,  $B(-6, 1)$  and  $C(-5, 8)$  are the vertices of a triangle, then find the coordinates of circumcenter of that triangle.



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16. In  $\triangle PQR$ , if  $P(5, -1)$ ,  $Q(-3, 3)$ ,  $R(-2, 6)$  are the vertices, then find the coordinates of the circumcentre and the radius of the circumcircle.



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**17.** If  $A(3,5)$ ,  $B(7,9)$  and  $Q$  divides seg  $AB$  in the ratio  $2:3$ ,

then find the co-ordinates of points  $Q$ .



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**18.** If  $C(-2,-6)$ ,  $D(2,10)$  and  $Q$  divides seg  $CD$  in the ratio  $4:3$ .

Find the co-ordinates of points  $Q$ .



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19. If point T divides the segment AB with A (-7,4) and B (-6,-5) in the ratio 7: 2, find the co-ordinates of T



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20. If point P(-4,6) divides the line segment AB with A(-6,10) in the ratio 2: 1 , then coordinates of the point B are

-----



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21. The line segment LM is divided by point

$B(-7, 2)$  in the ratio 2:1

if  $l(5, 4)$ , then find the co-ordinates of  $M$



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22. A (12,5) ,B (4,-3) and A-P-B . Find the ratio in

which point P (9,2)

divides segment AB.



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**23.** Find the coordinates of the points of trisection of the line segment joining the points  $(2,-2)$  and  $(-7,-4)$



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**24.** If  $P$  is the midpoint of line segment  $AB$  with  $A(-4, 2)$  and  $B(6, 2)$  then coordinates of point  $P$  are.



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25. If  $A(-14,-10), B(6,-2)$  is given, find the co-ordinates of the points which divide segment AB into four equal parts.



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26. The centroid of  $\triangle PQR$  is  $G(2,-4)$ , and  $P(3,-5)$  and  $Q(-1,-6)$  are its vertices. Then find the co-ordinates of R.



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27. If slope of the line joining points  $P(k,0)$  and  $Q(-3,-2)$  is  $\frac{2}{7}$ , then find  $k$ .



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28. Show that points  $P(-2,3)$ ,  $Q(1,2)$ ,  $R(4,1)$  are collinear.



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**29.** Show that points P (3,1) ,Q(-1,9) ,and R(4,-1) are collinear.



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**30.** Find the value of k, if the points A(-1,1) B(5,7) and C(8,k) are collinear



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**31.** Find the value of  $k$ , so that line joining the points  $A(3,k)$  and  $B(2,7)$  is parallel to line joining the points  $C(-1,4)$  and  $D(0,6)$ .



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**32.** Show that  $\square ABCD$  is a parallelogram if  $A(4,8)$ ,  $B(5,5)$ ,  $C(2,4)$ ,  $D(1,7)$ .



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33. If  $A(6,1)$  , $B(8,2)$  , $C(9,4)$  and  $D (7,3)$  are the vertices of  $\square ABCD$  ,  
show that  $\square ABCD$  is a parallelogram.



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## Chapter Assessment

1. Choose the correct alternative.

(i) The distance of  $Q (3,-1)$  from the origin is

A. 2 units

B. 4 units

C.  $\sqrt{5}$  units

D.  $\sqrt{10}$  units

**Answer: D**



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2. Choose the correct alternative.

(ii) The midpoint of the segment joining the points A (-5,6) and

B (-6,5) is .....



A. (a)  $\left(\frac{1}{2}, \frac{11}{2}\right)$

B. (b)  $\left(\frac{-1}{2}, \frac{11}{2}\right)$

C. (c)  $\left(\frac{11}{2}, \frac{-11}{2}\right)$

D. (d)  $\left(\frac{-11}{2}, \frac{11}{2}\right)$

**Answer: D**



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**3. Slope of X-axis is.....a)0 b)1 c) -1 d) Not defined**

A. 0

B. 1

C.  $\frac{1}{2}$

D.  $\frac{\sqrt{3}}{2}$

**Answer: A**



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**4. Solve the following quations .**

(i) Find the slope of the lines making  $45^\circ$  and

$90^\circ$  with the

direction of X-axis .



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5. Find the co-ordinates of a point on Y-axis

which is equidistant

from S (-3,-1) and T (2,-2) .



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6. Find  $k$ , if the line passing through points  $P(-12,-3)$  and  $Q(4,k)$  has slope  $\frac{1}{2}$ .



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7. Find the slope of line  $l$  which is parallel to  $X$ -axis .

Also , find the slope of line  $n$  which is parallel to  $Y$ -axis .



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**8.** Solve the following questions.

(i) Check if the points  $(3,9)$  ,  $(0,6)$  and  $(-4,2)$  are collinear or not .



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**9.** Solve the following questions.

(ii) Find the ratio in which point  $Q (-1,4)$  divides the line segment joining  $R (0,6)$  and  $S(-4,-2)$  .



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**10.** Solve the following questions.

(iii) Find the co-ordinates of the centroid of  $\Delta$  ABC if A(-3,2) ,B (-6,-1) and C (0,5) are its vertices.



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**11.** A(-4,-7),B(-1,2),C(8,5) and D(5,-4) are the vertices of rhombus ABCD.



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**12.** Find the ratio in which point  $P(k,7)$  divides the segment joining  $A(8,9)$  and  $B(1,2)$ . Also find  $k$ .



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**13.** Prove that the points  $(3, 0)$ ,  $(6, 4)$  and  $(-1, 3)$  are the vertices of a right angled isosceles triangle.



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**14.** Points  $A(-1, y)$  and  $B(5, 7)$  lie on a circle with centre  $O(2, -3y)$ .

Find the values of  $y$ . Hence, find the radius of the circle.



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**15.** Solve the following questions.

(i) Point  $R$  divides seg  $PQ$  externally in the ratio  $3:1$  and  $P-Q-R$ .

find the ratio in which point  $Q$  divides seg  $PR$ .



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