

INDIAN SCHOOL AL WADI AL KABIR

Class X, Mathematics

Worksheet 8 -Coordinate Geometry

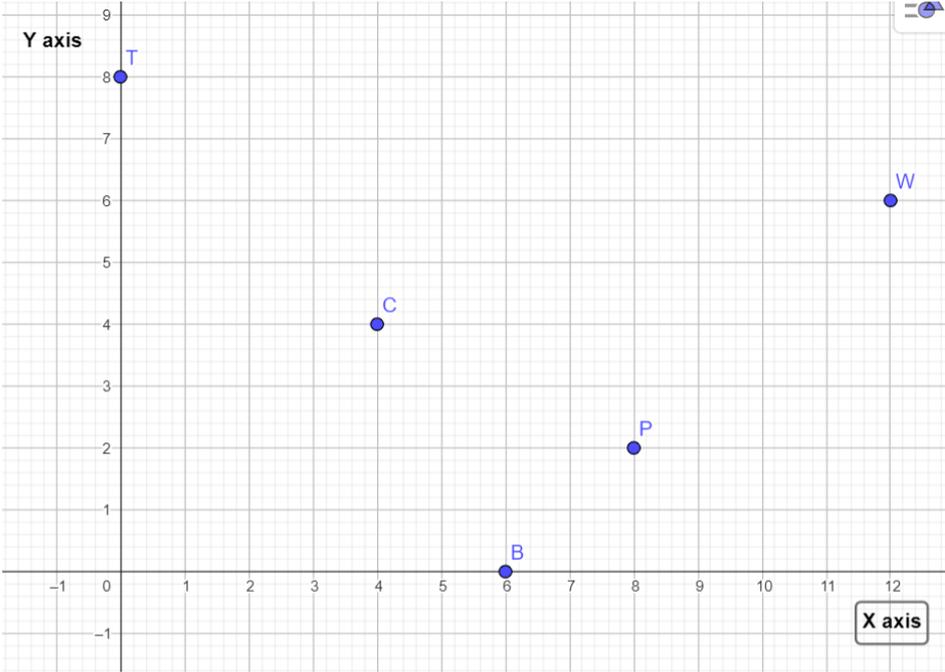
Q. No.	Questions of 1 Mark each.							
1.	The centroid of the triangle whose vertices are (3,-5), (-7,4) and (10, -2):							
A	(1,-2)	B	(3,1)	C	(2, -1)	D	(3,-2)	
2.	The distance of point P(1, -1) from x- axis is:							
A	1	B	-1	C	0	D	$\sqrt{2}$	
3.	The distance between the points $(a \cos \theta + b \sin \theta, 0)$ and $(0, a \sin \theta - b \cos \theta)$ is:							
A	$a^2 + b^2$	B	$a^2 - b^2$	C	$\sqrt{a^2 + b^2}$	D	$\sqrt{a^2 - b^2}$	
4.	<p>The figure shows a parallelogram with one of its vertices intersecting the y-axis at 3 and another vertex intersecting the x-axis at 2.</p> <p>If (m, n) is the intersection point of the diagonals of the parallelogram, which relation is correct?</p>							
A	$m = n - 0.5$	B	$m = 0.5 + n$	C	$m = 1.50 + n$	D	$m = n - 1.50$	
5.	The distance of point(3a, 4a) from y- axis is:							
A	3a	B	-3a	C	4a	D	-4a	
6.	On a graph, two-line segments, AB and CD of equal length are drawn. Which of these could be the coordinates of the points, A, B, C and D?							
A	A(3,4) B(-1,2) and C(3,4) D(1,2)			B	A(-3,-4) B(-1,2) and C(3,4) D(1,2)			
C	A(-3,4) B(-1,-2) and C(3,4) D(1,2)			D	A(-3,4) B(-1,2) and C(3,4) D(1,2)			

7.	The points(-5, 0), (5, 0) and (0, 4) are the vertices of a triangle which is a/an:			
	A	Right- angled triangle	B	Isosceles triangle
	D	Equilateral triangle	D	Scalene triangle
<p>DIRECTION: In the following questions, a statement of assertion (A) is followed by statement of Reason (R). Choose the correct option</p> <p>(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A)</p> <p>(b) Both assertion (A) and reason (R) are true and reason (R) is not the correct explanation of assertion (A)</p> <p>(c) Assertion (A) is true but reason (R) is false.</p> <p>(d) Assertion (A) is false but reason (R) is true.</p>				
8.	<p>Assertion(A):Midpoint of a line segment divides the line segment in the ratio 1:1.</p> <p>Reason(R):The ratio in which the point (-3,k) divides the line segment joining the points (-5,4) and (-2,3) is 1:2.</p>			
Questions of 2 marks each				
9.	Find the area of a rhombus if its vertices (3,0), (4,5)(-1,4) and (-2,-1) are taken in order.			
10.	<p>The coordinates of the end points of the line segment AB are A(-2, -2) and B(2, -4). P is the point on AB such that $BP = \frac{4}{7} AB$. Find the coordinates of the point P.</p>			
11.	If the mid – point of the line segment joining the points A(3, 4) and B(k, 6) is P(x, y) and $x + y - 10 = 0$, then find the value of k.			
12.	Find the length of the median through the vertex B of ΔABC with vertices A(9, -2), B(-3, 7) and C(-1. 10)			
Questions of 3 marks each				
13.	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 P lies on the line $3x - 18y + k = 0$. Find the value of k.			
14.	If the points A(6, 1), B(p, 2), C(9, 4) and D(7, q) are the vertices of a parallelogram ABCD, then find the values of p and q. Hence, check whether ABCD is a rectangle or not.			
15.	Find a relation between x and y such that P(x, y) is equidistant from the points A(3, 5) and B(7, 1). Hence, write the coordinates of the points on x- axis and y- axis which are equidistant from points A and B.			

16.	P(x, y), Q(-2, -3) and R(2, 3) are the vertices of a right triangle PQR right angled at P. find the relationship between x and y. Hence, find all possible values of x for which y = 2.
17.	Find the ratio in which the y – axis divides the line segment joining the points (5, -6) and (-1, -4). Also find the point of intersection.

Questions of 5 marks each

18.	<p>The line segment joining points A(-6, 5) and B(4, -3) is divided by points P and Q such that $AP:PQ:QB = 2:1:2$.</p> <p>(i) Find the coordinates of points P and Q. (3 marks)</p> <p>(ii) Verify that $AP + PQ + QB = AB$. (2 marks)</p>
19.	<p>The mid-points D, E, F of the sides of a triangle ABC are (3, 4),(8, 9) and (6, 7). Find the coordinates of the vertices of the triangle.</p> <p>(Hint: Prove that DFEB is a parallelogram. Hence find coordinates of B by applying the property, the diagonals of parallelogram bisect each other. Apply the same property for parallelograms DFCE and DAFE)</p>

20.	<p>An archaeological team is exploring an ancient site. They have set up a coordinate system with the origin at their base camp. Various artifacts and structures have been discovered at the following coordinates (in meters):</p> <div style="display: flex; align-items: center;">  <div style="border: 1px solid black; padding: 10px; margin-left: 20px;"> <p>Ancient Temple: T</p> <p>Burial Ground: B</p> <p>Water Well :W</p> <p>Stone Circle :C</p> <p>Pottery Site : P</p> </div> </div>
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The team needs to plan their excavation routes and establish the relationships between these historical sites.

Based on the above information, answer the following questions.

- (i) Write the coordinates of the points representing Ancient Temple and Stone Circle. (1 m)
- (ii) Calculate the distance between the Ancient Temple and the Water Well. Express your answer in simplest radical form. (1m)
- (iii) The team wants to set up a research station at a point that divides the line segment from the Burial Ground to Water Well internally in the ratio 2:1. Find the coordinates of this research station. (2 m)

OR

- (iii) If the Stone Circle, Pottery Site, and a newly discovered Granary(G) form an isosceles triangle with Stone Circle as the vertex and $CG = PG$ and the Granary is located at $(x, 8)$, find the value of x . (2 m)

Answers

Answers	1	C	2	A	3	C	4	B
	5	A	6	D	7	B	8	c
	9	24 sq. units	10	$(\frac{-2}{7}, \frac{-20}{7})$	11	7	12	$\sqrt{58}$ units
	13	$k = 19$	14	p = 8, q = 3, ABCD is not a rectangle	15	$x - y = 2$ (2, 0), (0, -2)	16	$x^2 + y^2 = 13$ $y = 2, x = \pm 3$
	17	5:1, $P(0, \frac{-13}{3})$	18	(i) $P(-2, \frac{9}{5}), Q(0, \frac{1}{5})$ (ii) $\frac{\sqrt{656}}{5}$	19	A (1, 2), B (5,6), C (11, 12).		
	20	(i)(0,8) and (4, 4) (ii) $4\sqrt{13}$ (iii)(10,4) OR $\frac{17}{2}$						