INDIAN SCHOOL NIZWA - WORKSHEET

MATHEMATICS
7. Coordinate Geometry

Name: _____ Date:_____ Class: X Sec: ___

1. The midpoint of the line segment joining the points A(2, 4) and B(-2, -4) is:
   (a) (-2, 4) (b) (2, -4) (c) (0, 0) (d) (-2, -4)

2. If the distance between the points (x, 7) and (1, 15) is 10, then the possible values of x are:
   (a) 7, -5 (b) 7, -1 (c) 7, 4 (d) -7, -5

3. What is the ratio in which the point P(4, m) divides the line segment joining the points A(2, 3) and B(6, -3)?
   (a) 1:2 (b) 1:3 (c) 2:1 (d) 3:1

4. The centroid of a triangle with vertices (3, -5), (-7, 4), and (10, -2) is:
   (a) (2, -1) (b) (2, 1) (c) (-2, 1) (d) (1, 2)

5. What is the length of the median from vertex A to side BC in a triangle ABC with vertices A(-1, 3), B(-2, -2), and C(4, 2)?
   (a) $\sqrt{41}$ (b) $\sqrt{37}$ (c) $\sqrt{29}$ (d) $\sqrt{34}$

6. Find the distance between (i) P (-7, 1) and Q (4 ,-1) (ii) K(-a ,a) and L(a,0)

7. Prove that the points A(2 , -2),B (-3 , 8) and C (-1 , 4) are collinear.

8. Prove that the points A(-3 , 2),B (-5 , -5), C (2 , -3) and D (4 , 4) are the vertices of a rhombus.

9. Prove that the points A (7 , 10), B(-2 , 5) and C(3 , -4) are the vertices of an isosceles right triangle

10. Prove that the points A (2 ,-2), B(14 ,10), C (11 ,13) and D (-1 ,1) are the vertices of a rectangle.

11. Find a point on X-axis which is equidistant from A (7, 6) and B (-3 , 4).

12. Find a point on Y- axis which is equidistant from A (5 ,-2) and B (-3 ,2).

13. P(x ,y) is equidistant from A(1 , 4) and B (-1 , 2). Prove that $x + y = 3$.

14. The point P (2 , 2) is equidistant from A (-2 , k) and B (-2k ,-3). Find the value of k.

15. The distance between A(x, 5) and B (9, -1) is 10 units, find x.

16. A(3,-1) and B(5,7) is divided by P (x , y) in the ratio 2:3. Find P.

17. P(0,-3) is the mid point of A(-5, y) and B(x,-1). Find x and y.

18. P(-3, 2) divides the join of A(-1 , y) and B(x ,-6) in the ratio 2:3. Find x and y.

19. If (3,3), (6,y),(x,7) and (5,6) are the vertices of a parallelogram. Find x and y.

20. In what ratio does the point (1,-6/5) divides the line segment joining the points A(-1,0) and B(4,-3) ?

21. Determine the ratio in which P(m,6) divides the line segment joining the points A(-4,3) and B(2,8). Also find the value of m.

22. Find the ratio in which the line segment joining A(6,4) and B(1,-7) is divided by the x- axis . Also find x.

23. Find the ratio in which the line segment joining A(5,-6) and B(-1,-4) is divided by the y- axis . Also find y.

24. Find the points of trisection of the points A(9,1) and B(4,-3).

25. Find the points which divide AB into 4 equal parts , where A is (1,6) and B(3,-4).

26. Find the ratio in which the line $x - y = 2$ divides the join of A(3,-1) and B(8,9).

27. P divides the line segment joining the points A(2,1) and B(5,-8) such that AP: BP = 1:3. If P lies on the line $2x - y + k = 0$, find the value of k.

28. Find the point P(x ,y) which divides the join of A(-1,7) and B(5,-2) such that AP : AB = 2: 7.

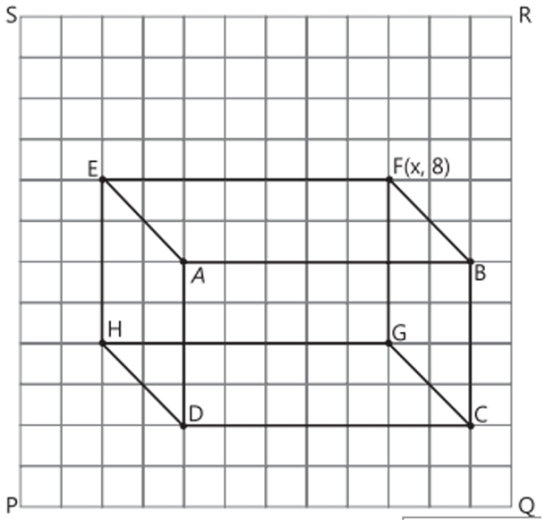
29. **Assertion (A):** The point (0, 4) lies on y-axis.
Reason (R): The x-coordinate on the point on y-axis is zero.

30. **Assertion (A):** The value of y is 6, for which the distance between the points P(2, –3) and Q(10, y) is 10.
Reason (R): Distance between two given points A (x_1, y_1) and B (x_2, y_2) is given by

$$AB = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

31. **Case Study 1**

According to medical science and research, keeping an aquarium in the house helps in treating stress, anxiety and health problems associated with blood. It also provides visual stimulation that boost your focus and creativity. A sketch of an aquarium is drawn, which is given in the following figure.

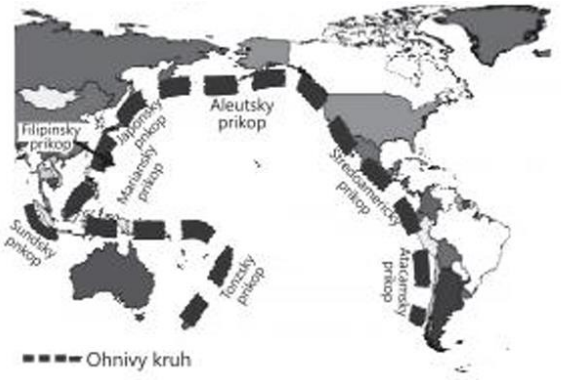


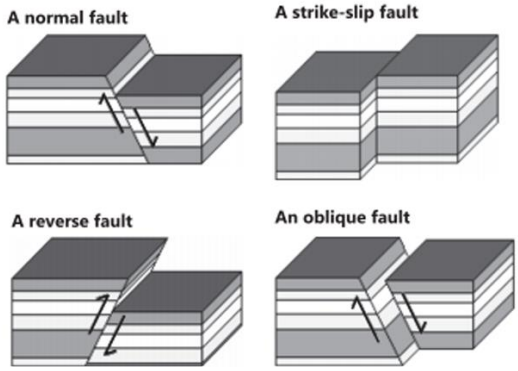
i) Distance of the point G from the Y-axis is:
ii) Length of side HG =
iii) Find the length of diagonal FD and the value of x.
iv) If Q is considered as origin, then the coordinates of mid-point of BC.

32. Case Study 2

Pacific Ring of Fire The Pacific Ring of Fire is a major area in the basin of the Pacific Ocean where many earthquakes and volcanic eruptions occur. In a large horseshoe shape, it is associated with a nearly continuous series of oceanic trenches, volcanic

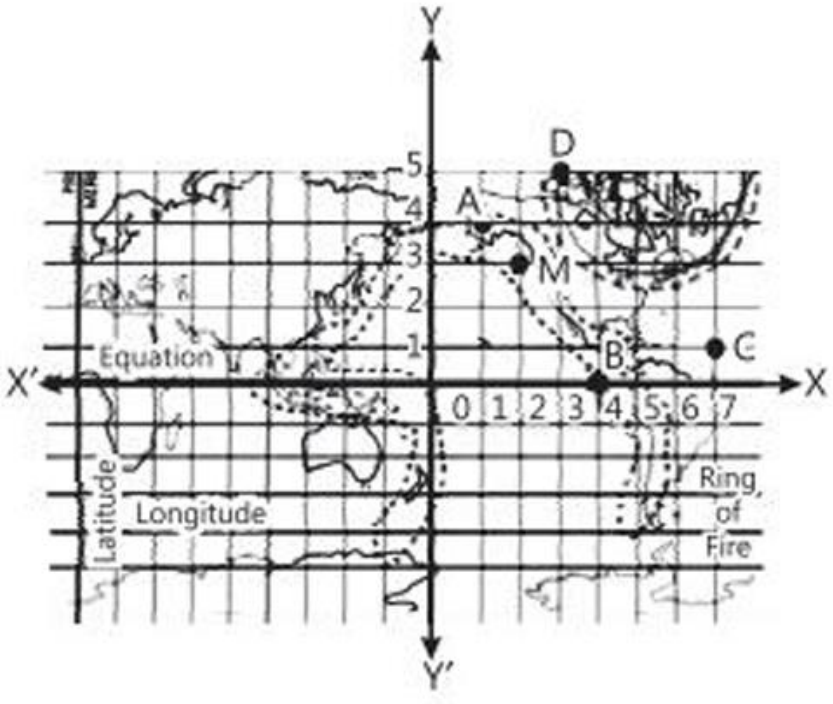
arcs, and volcanic belts and plate movements.





Fault Lines Large faults within the Earth's crust result from the action of plate tectonic forces, with the largest forming the boundaries between the plates. Energy release associated witrapid movement on active faults is the cause of most earthquakes.

Positions of some countries in the pacific ring of fire is shown in the square grid below.



Based on the above information, solve the following questions:

i) The distance between the point Country A and Country B is____

ii) Find a relation between x and y such that the point (x, y) is equidistant from the Country C and Country D.

iii) The fault line $3x+y-9 = 0$ divides the line joining the Country P(1, 3) and Country Q(2,7) internally in the ratio_____

iv) What are the co-ordinates of the Country lying on the mid-point of Country A and Country D?