

CBSE TEST PAPER

10TH MATHEMATICS

Distance and Section Formulae

1. Calculate the distance between the points $P(2, 2)$, $Q(5, 4)$ correct to three significant figures. (Do not consult tables).
2. A is a point on the y-axis whose ordinate is 5 and B is the point $(-3, 1)$. Calculate the length of AB.
3. The distance between $A(1, 3)$ and $B(x, 7)$ is 5. Find the possible values of x.
4. P and Q have co-ordinates $(-1, 2)$ and $(6, 3)$ respectively. Reflect P in the x-axis to P' . Find the length of the segment $P'Q$.
5. Point $A(2, -4)$ is reflected in the origin as A' . Point $B(-3, 2)$ is reflected in x-axis at B' . Write the co-ordinates of A' and B' . Calculate the distance $A'B'$ correct to one decimal place.
6. The center of a circle of radius 13 units is the point $(3, 6)$. $P(7, 9)$ is a point inside the circle. APB is a chord of the circle such that $AP = PB$. Calculate the length of AB.
7. A and B have co-ordinates $(4, 3)$ and $(0, 1)$ respectively. Find (i) the image A' of A under reflection in the y-axis.
(ii) the image B' of B under reflection in the line AA' .
(iii) the length of $A'B'$.
8. What point (or points) on the x-axis are at a distance of 5 units from the point $(5, -4)$?
9. Find point (or points) which are at a distance of 10 from the point $(4, 3)$, given that the ordinate of the point (or points) is twice the abscissa.
10. Show that the points $(3, 3)$, $(9, 0)$ and $(12, 21)$ are the vertices of a right angled triangle.
11. Show that the points $(0, -1)$, $(-2, 3)$, $(6, 7)$ and $(8, 3)$ are the vertices of a rectangle.
12. The points $A(0, 3)$, $B(-2, a)$ and $C(-1, 4)$ are the vertices of a right angled triangle at A, find the value of a.
13. Show by distance formula that the points $(-1, -1)$, $(2, 3)$ and $(8, 11)$ are collinear.
14. Calculate the co-ordinates of the point P that divides the line joining the points A $(-1, 3)$ and B $(5, -6)$ internally in the ratio 1:2.

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15. Find the co-ordinates of the points of trisection of the line segment joining the points (3, -3) and (6, 9).
16. The line segment joining A(-3, 1) and B(5, -4) is a diameter of a circle whose center is C. Find the co-ordinates of the point C.
17. The mid-point of the line joining (a, 2) and (3, 6) is (2, b). Find the values of a and b.
18. The mid-point of the line segment joining (2a, 4) and (-2, 3b) is (1, 2a + 1). Find the values of a and b.
19. The center of a circle is (1, -2) and one end of a diameter is (-3, 2), find the co-ordinates of the other end.
20. Find the reflection of the point (5, -3) in the point (-1, 3).

Answers

1. $3\sqrt{6}$ units
2. 5 units
3. 4 or -2
4. 74 units
5. A'(-2, 4), B'(-3, -2); $6\sqrt{1}$ units
6. 24 units
7. (i) (-4, 3) (ii) (0, 5) (iii) 25 units
8. (2, 0) and (8, 0)
9. (1, 2), (3, 6)
10. $67\sqrt{5}$ sq. units
12. 1
14. (1, 0)
15. (4, 1), (5, 5)
16. (1, -3/2)
17. a = 1, b = 4
18. a = 2, b = 2
19. (5, -6)
20. (-7, 9)