The Practise Ground

Classes 9-12 Maths

Distance Formula

Find the distance between any two points

1

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

Any two points $A(x_1, y_1)$ and $B(x_2, y_2)$
Subtract, square, add, then take the square root

2

$$d = \sqrt{(x^2 + y^2)}$$

Distance from the origin
Use it when one point is (0, 0)

3

$$d = |x_2 - x_1| \quad \text{or} \quad |y_2 - y_1|$$

Points on a horizontal or vertical line
Same y gives a horizontal line. Same x gives a vertical one

4

$$d = \sqrt{[(x_2-x_1)^2+(y_2-y_1)^2+(z_2-z_1)^2]}$$

Points in 3D space
Add the z-difference squared under the root

Three steps

1. Subtract the x-values, then the y-values.
2. Square both answers and add them.
3. Take the square root. Leave it as a surd if it is not exact.

Quick example

Find the distance from A(1, 2) to B(4, 6).

$d = \sqrt{(3^2 + 4^2)} = \sqrt{25} = 5$ units

The midpoint is $((x_1+x_2)/2, (y_1+y_2)/2)$.

Think you've got it? Test yourself.

Scan to check any answer, step by step.

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