Distance between points

School Connect: Intro to DS & AI

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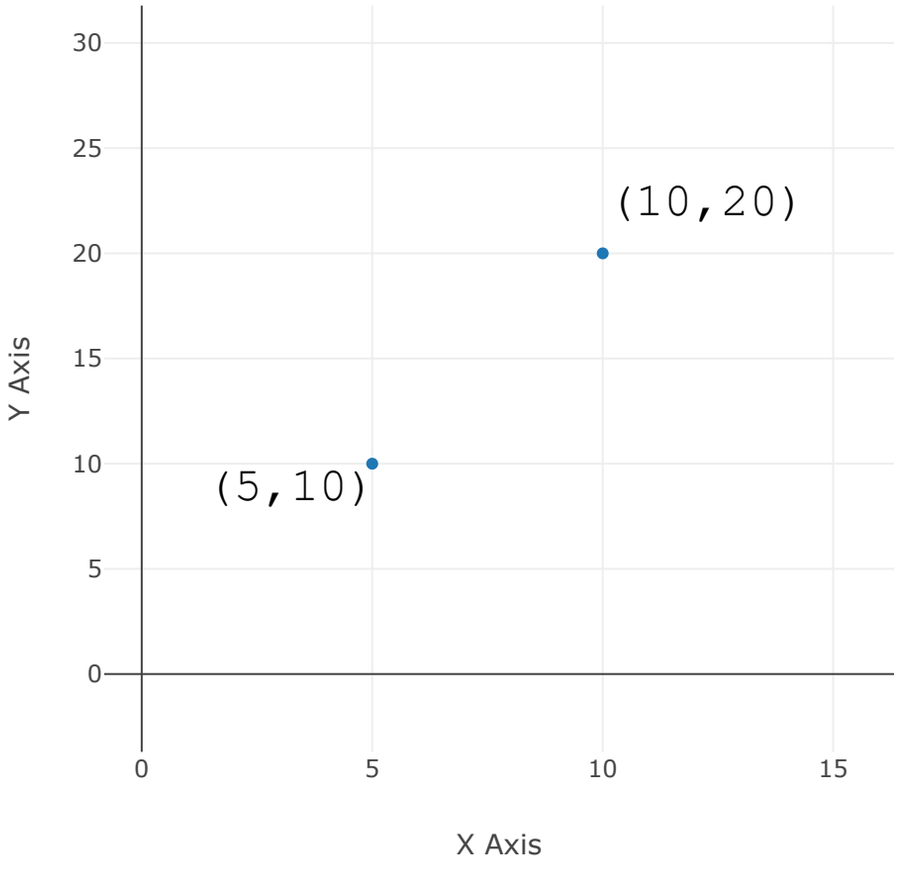
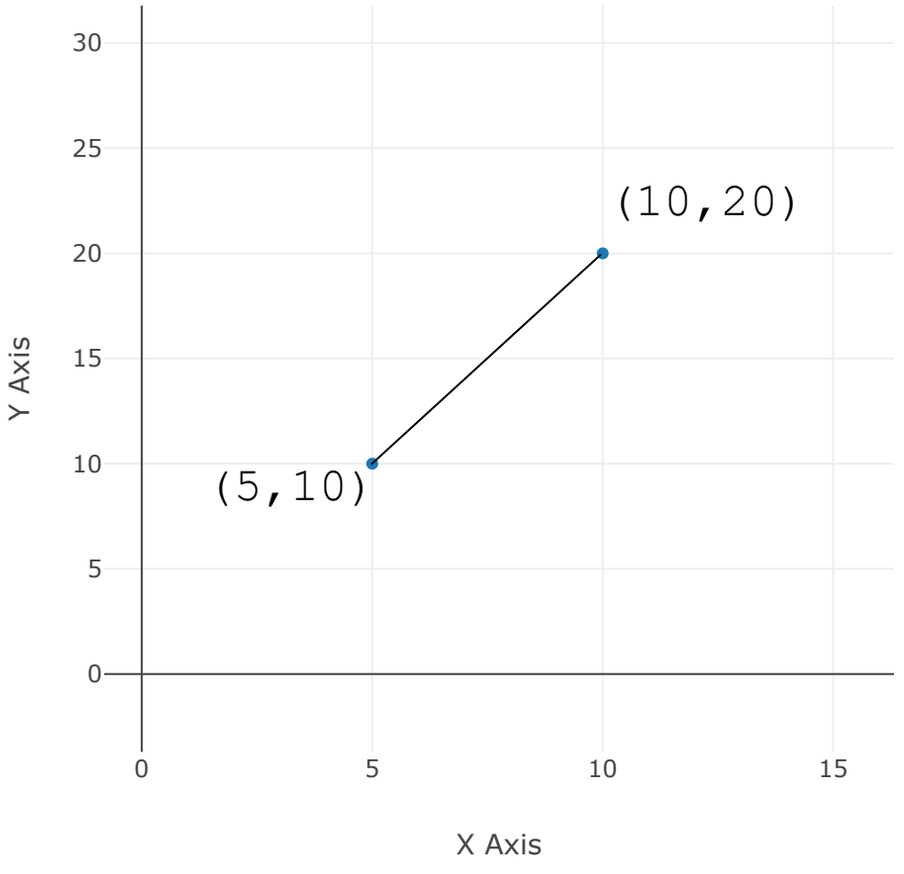
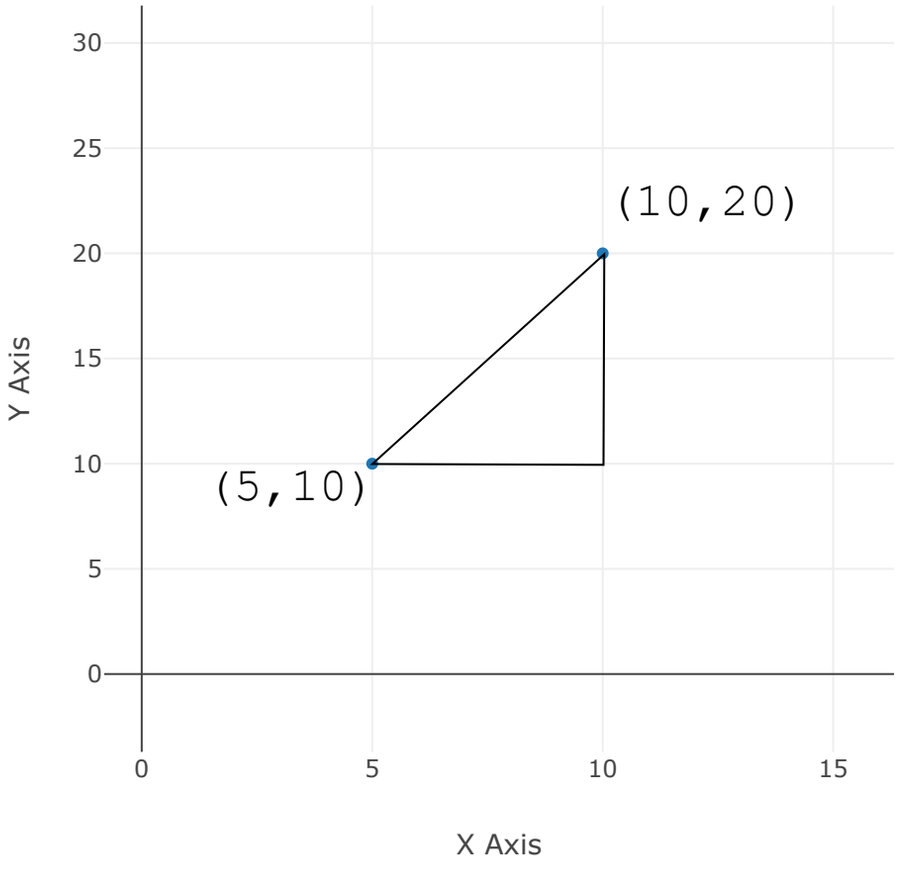
Euclidean Distance



Euclidean Distance



Euclidean Distance



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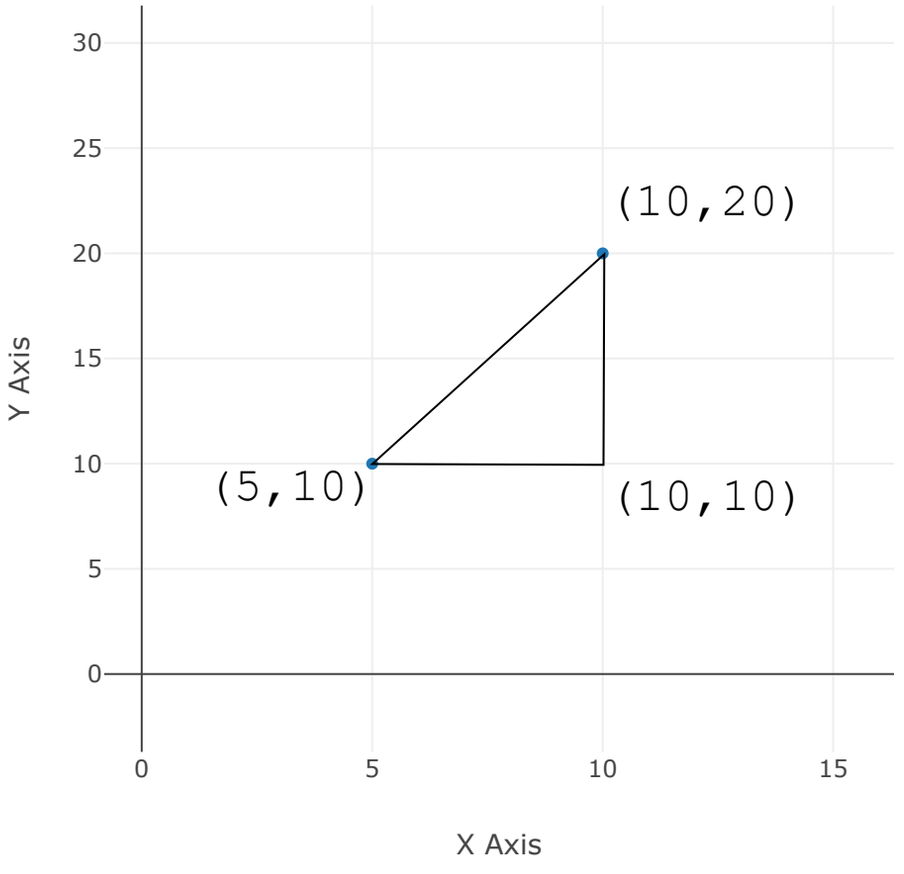
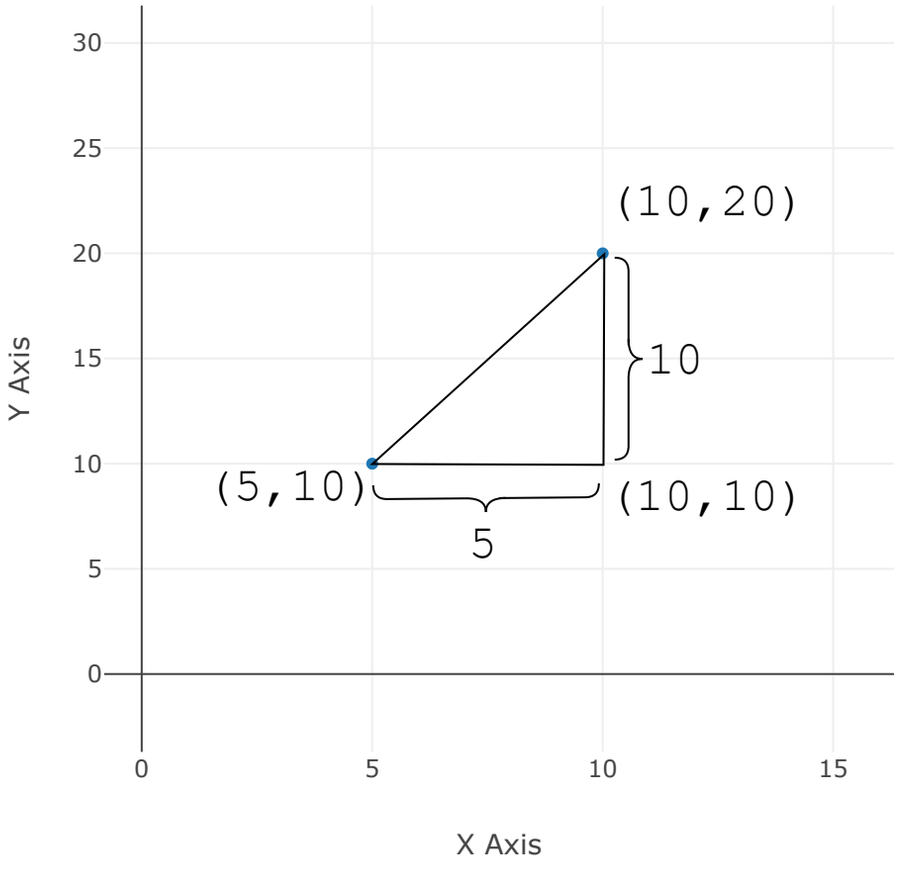
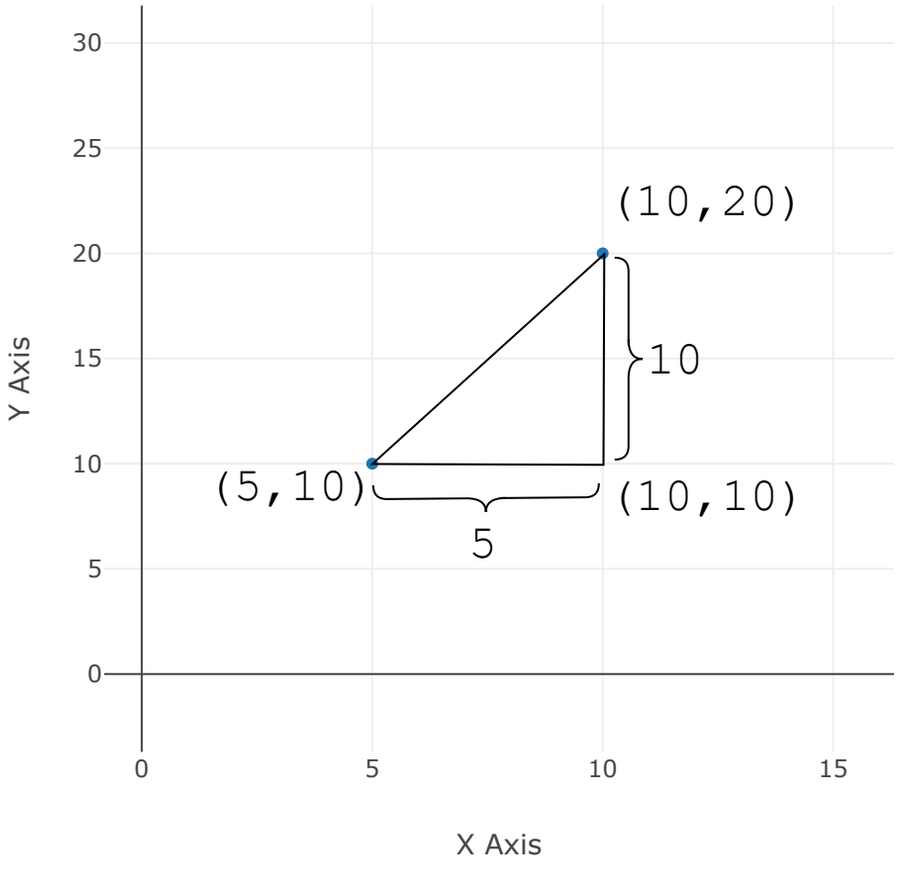


Euclidean Distance

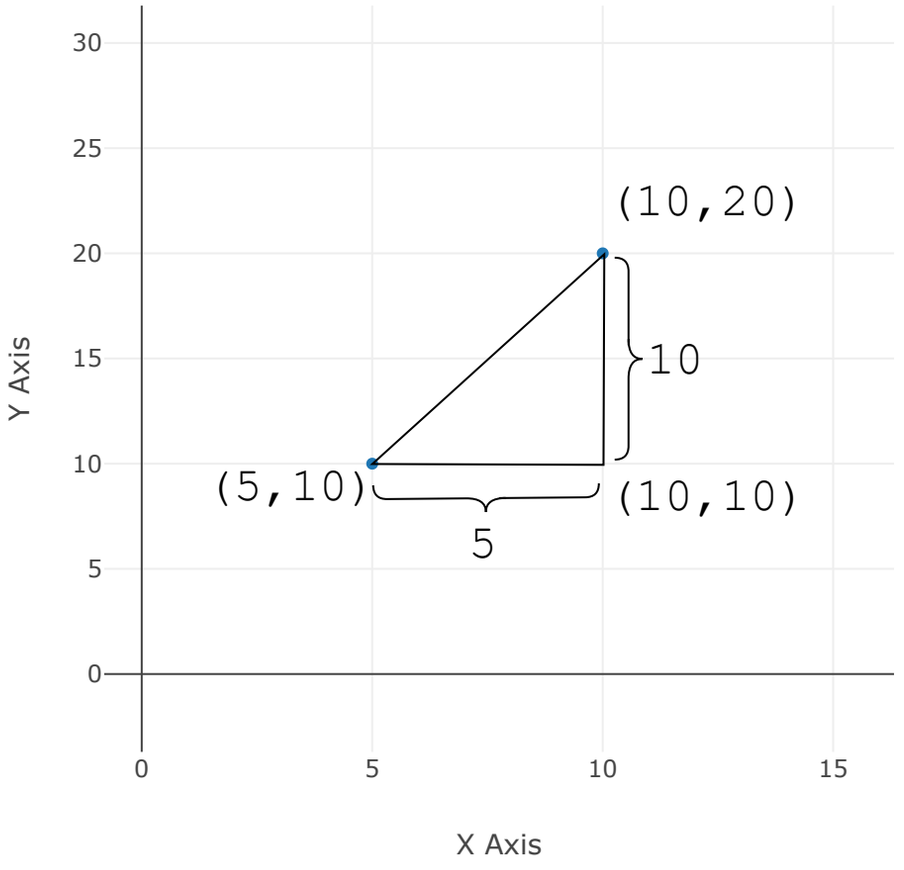


Euclidean Distance



$$\text{Distance} = \sqrt{(10-5)^2 + (20 - 10)^2}$$

Euclidean Distance



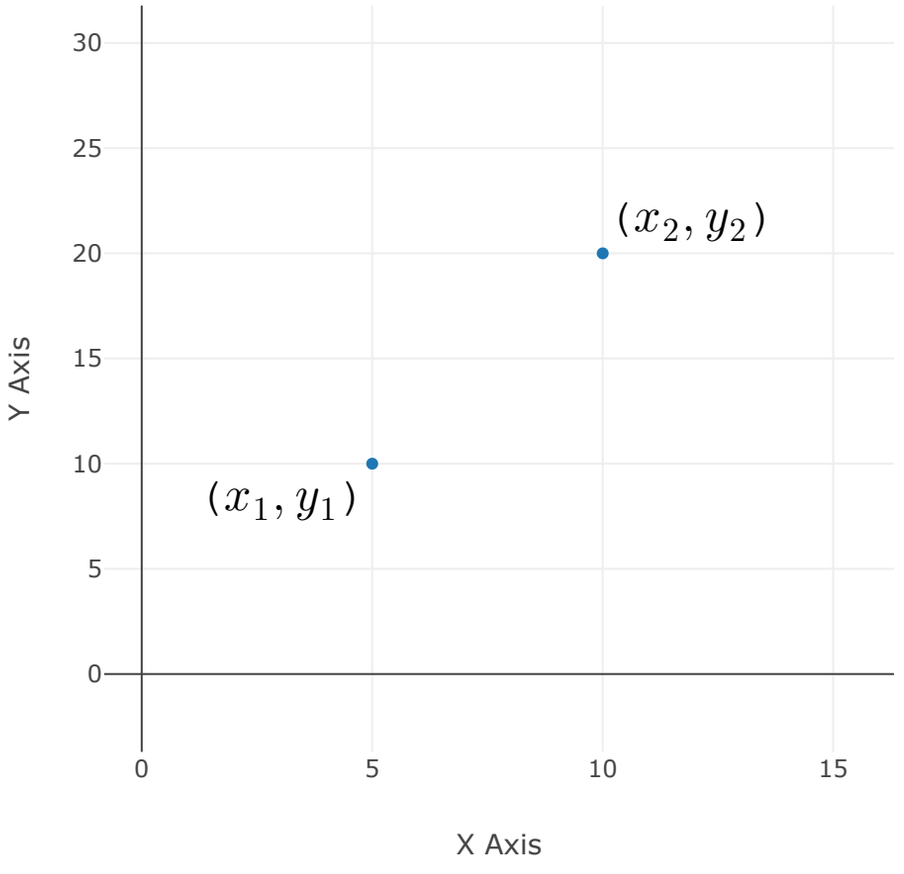
$$\text{Distance} = \sqrt{(10-5)^2 + (20 - 10)^2}$$

$$= \sqrt{5^2 + 10^2}$$

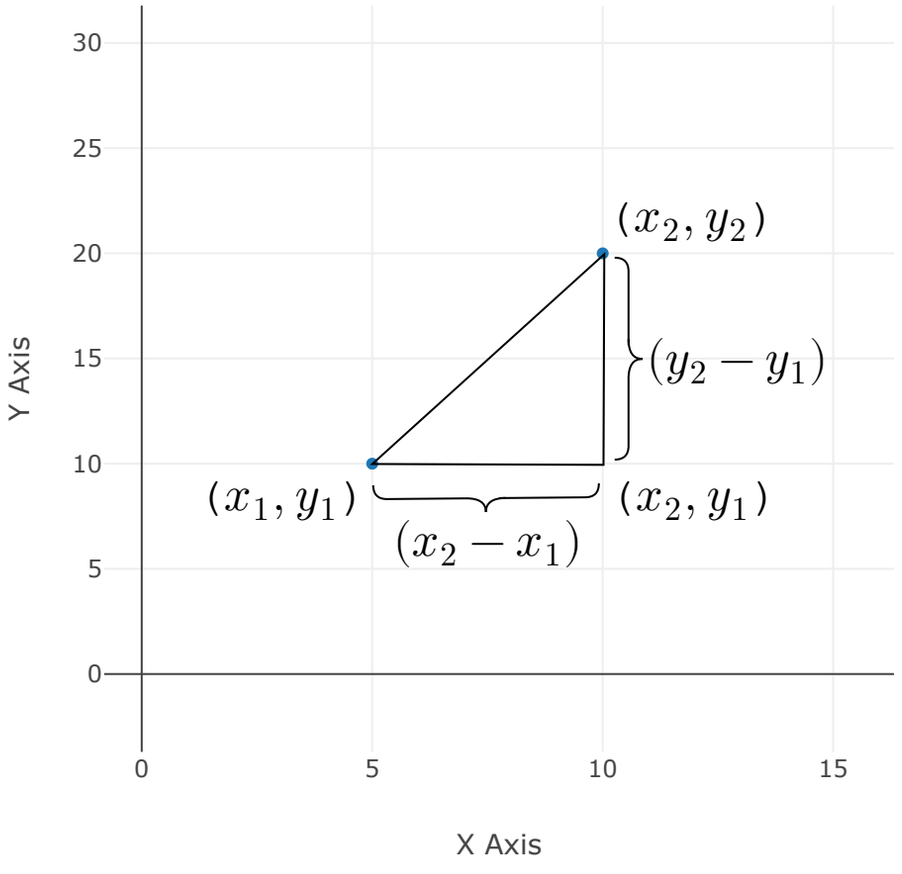
$$= \sqrt{125}$$

$$= 11.18$$

Euclidean Distance

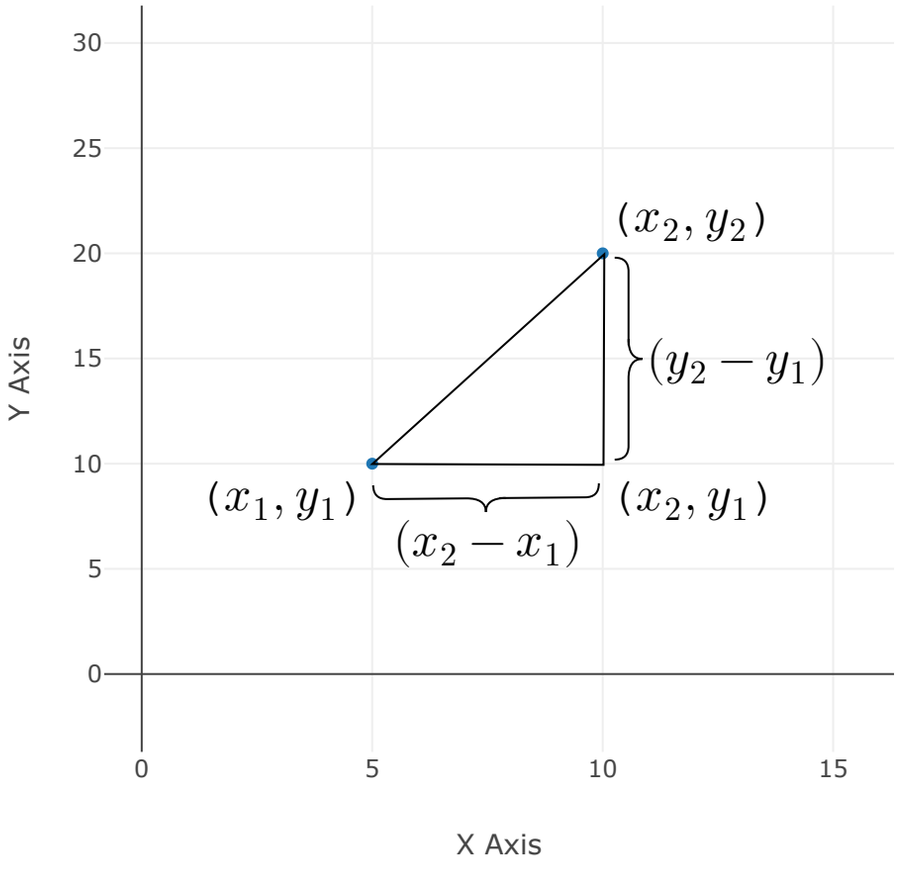


Euclidean Distance



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

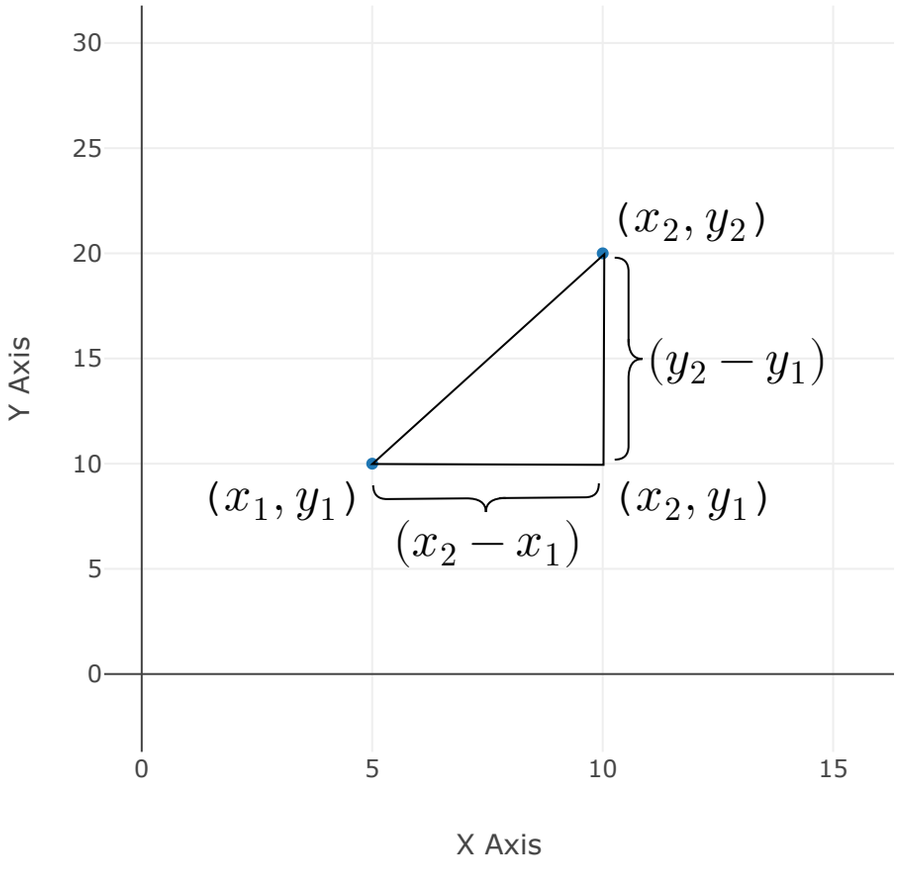
Euclidean Distance



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

What if the point is in higher dimensions / has more features?

Euclidean Distance

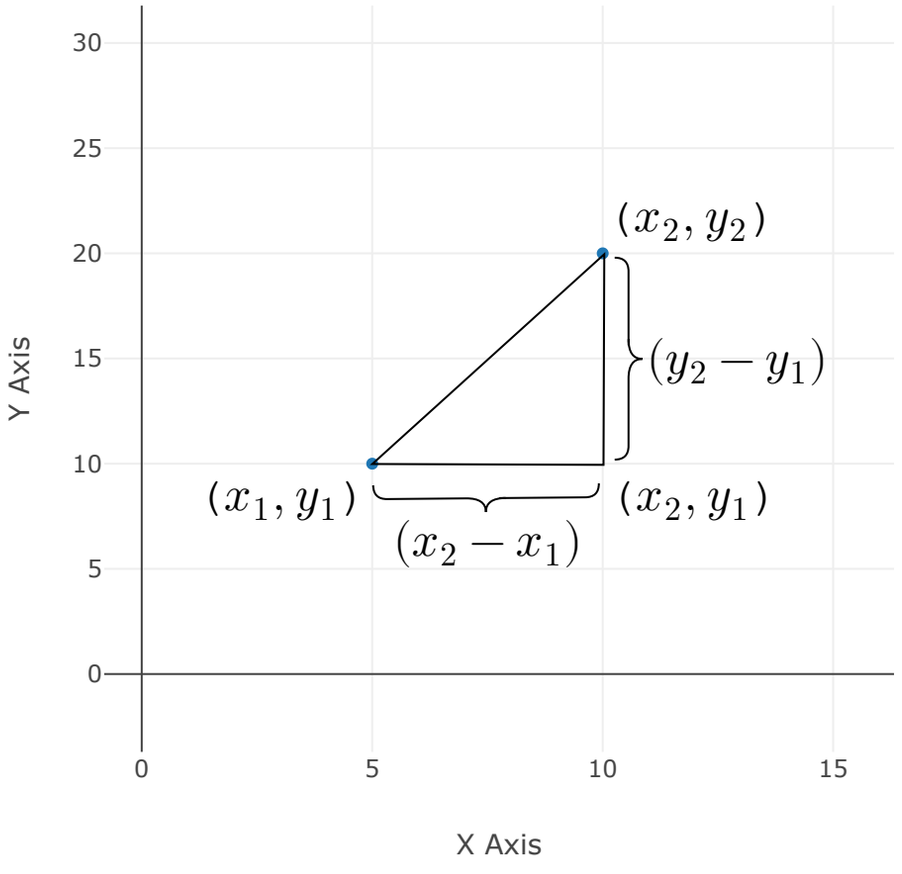


$$\text{Distance} = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

What if the point is in higher dimensions / has more features?

The Euclidean distance calculation remains the same!

Euclidean Distance



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

What if the point is in higher dimensions / has more features?

The Euclidean distance calculation remains the same!

If we have two points (x_1, y_1, z_1) & (x_2, y_2, z_2)
The distance between them is calculated as $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2 + (z_2 - z_1)^2}$

Euclidean Distance

Student	English	French	History	Algebra	Biology	Physics	Physical
Demi	9	15	18	61	100	90	8
Nash	14	4	15	61	42	51	39

Distance between scores of Demi & Nash:

$$\begin{aligned}\text{Distance} &= \sqrt{(9-14)^2 + (15-4)^2 + (18-15)^2 + (61-61)^2 + (100-42)^2 + (90-51)^2 + (8-39)^2} \\ &= \sqrt{6001} \\ &= 77.466\end{aligned}$$

Thank you