This book has permission to use the "N&K method of COLORS".

Example: Coordinate Geometry, Coordinate Points

Question: You are given the coordinate points (-1,3), (3,0) and (6,4). Prove that they are the vertices of a right angle triangle? Solution 1 (Pythagorean Theorem)

For speed, while solving something similar, only THINK the words in blue; WRITE only the words in other COLORS.

Given: 1) the coordinate points (-1,3), (3,0) and (6,4).
Solve: Prove that they are the vertices of a right angle triangle?

Road Map of Solution:
If it is a right angle triangle, the Pythagorean theorem will work.
i.e. The square of the largest side is equal to the sum of the squares of the two smaller sides.
First Step: Find the length of the sides of the triangle. i.e. the distances between the points.
Second Step: Substitute the values in the Pythagorean Theorem.

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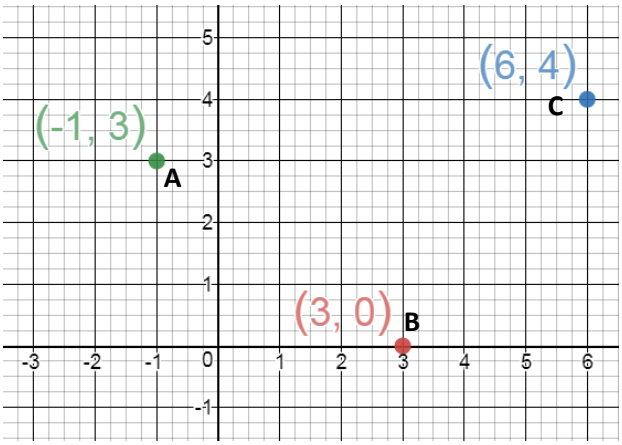

AB = Distance between (-1,3) & (3,0)
$= \sqrt{(x1 - x2)^2 + (y1 - y2)^2}$
$= \sqrt{(-1 - 3)^2 + (3 - 0)^2}$
$= \sqrt{(\quad -4)^2 + (\quad 3)^2}$
$= \sqrt{\quad 16 \quad + \quad 9}$
AB $= \sqrt{\quad 25}$ ..... *equation # 1*

BC = Distance between (3,0) & (6,4))
$= \sqrt{(x1 - x2)^2 + (y1 - y2)^2}$
$= \sqrt{(3 \quad - 6)^2 \quad + (0 \quad - 4)^2}$
$= \sqrt{(\quad - 3)^2 \quad + (\quad - 4)^2}$
$= \sqrt{\quad 9 \quad + \quad 16}$
BC $= \sqrt{\quad 25}$ ..... *equation # 2*

CA = Distance between (-1,3) & (6,4)
$= \sqrt{(x1 - x2)^2 + (y1 - y2)^2}$
$= \sqrt{(-1 - 6)^2 \quad + (3 \quad - 4)^2}$
$= \sqrt{(\quad -7)^2 + (\quad -1)^2}$
$= \sqrt{\quad 49 \quad + \quad 1}$
CA $= \sqrt{\quad 50}$ ..... *equation # 3* *Distance obtained from Coordinate Geometry*

Second Step: Substitute the values in the Pythagorean Theorem
Pythagorean Theorem

CA^2	=	AB^2	+	BC^2
CA^2	=	$(\sqrt{25})^2$	+	$(\sqrt{25})^2$
CA^2	=	25	+	25
CA^2	=	50		
CA	=	$\sqrt{50}$ ..... *equation # 4*		*Distance obtained from Pythagorean Theorem*

Since the length of CA from equation #s 3 & 4 are the same, we can conclude that the given points are the vertices of a right angle triangle.