## Calculating Distance in the Complex Plane - Guided Lesson Explanation

Step 1 for all problems:

We have to plot the points based on the provided complex numbers. Remember that the x-axis represents the real numbers and the y-axis represents the imaginary numbers. When converting to rectangular coordinates: x = the real number and y = the imaginary number

Explanation #1
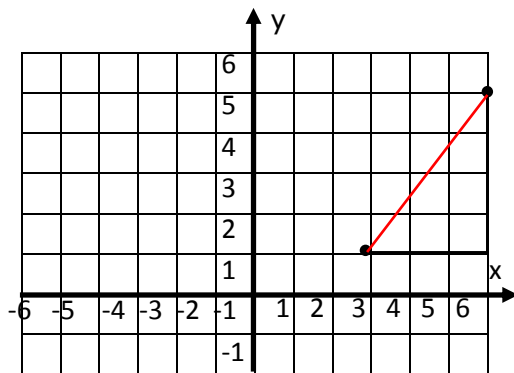
Step 1) Start by plotting the points. They are:

(3, 1) and (6, 5)

Step 2) Create a right triangle and use the Pythagorean theorem to calculate the distance between complex numbers in the coordinate plane.

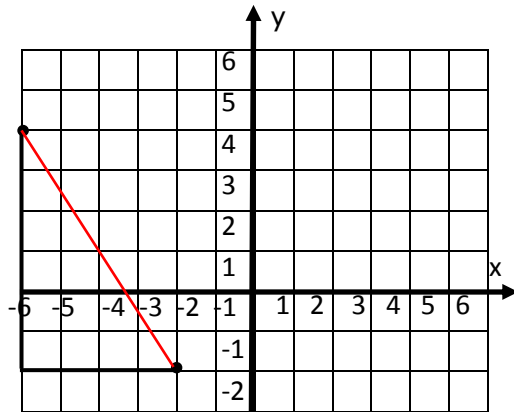We need to move right 3 and up 4 to complete the triangle.

Step 3) $\sqrt{4^2+3^2}$ = 5

Explanation #2

Step 1) Start by plotting the points. They come out to be:

(-2 , -2) and (-6, 4)

Step 2) Create the left triangle by connecting the points. This allows us to use Pythagorean Theorem. To connect the points we need to move 4 to the left and up 6.
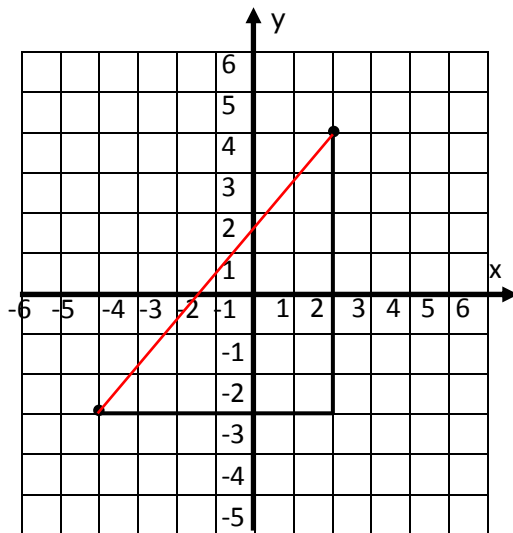
Step3) $\sqrt{4^2+6^2}$ = 7.21

Explanation#3

We use the same procedure for this one.

Step 1) Plot the points. (-2, 2) and (-6, 5) Draw a line to connect them.

Step 2) Draw lines to make a right triangle. You will need to move 6 spaces right and 7 spaces up to connect the triangle.

Step 3) $\sqrt{6^2+7^2}$ =9.21

Use the Pythagorean Theorem, count the column to find the distance.

So the distance is 9.21