

Plotting and Pythagorean Theorem Work

Name: _____ Class: _____ Date: _____

On the Cartesian Plane provided, plot the following points:

A(5, 17)

B(5, 5)

C(-11, 17)

D(-11, 5)

E(-6, 5)

F(-11, -3)

G(5, -4)

H(13, 3)

I(13, -10)

***Make sure you are labelling each point with the letter and the coordinate pair.**

1) Find the distance for each of the segments

AB - 12BD - 16

Now, use a folded copy of the Cartesian Plane and use it as a ruler to find the distance of AD - 20. Now, use the Pythagorean Theorem to calculate the AD distance (use AB distance for A and BD distance for B to get C).

$$\begin{aligned} A^2 + B^2 &= C^2 \\ (12)^2 + (16)^2 &= C^2 \\ 144 + 256 &= C^2 \\ 400 &= C^2 \\ 20 &= C \end{aligned}$$

AD_{Pyth} - 20.

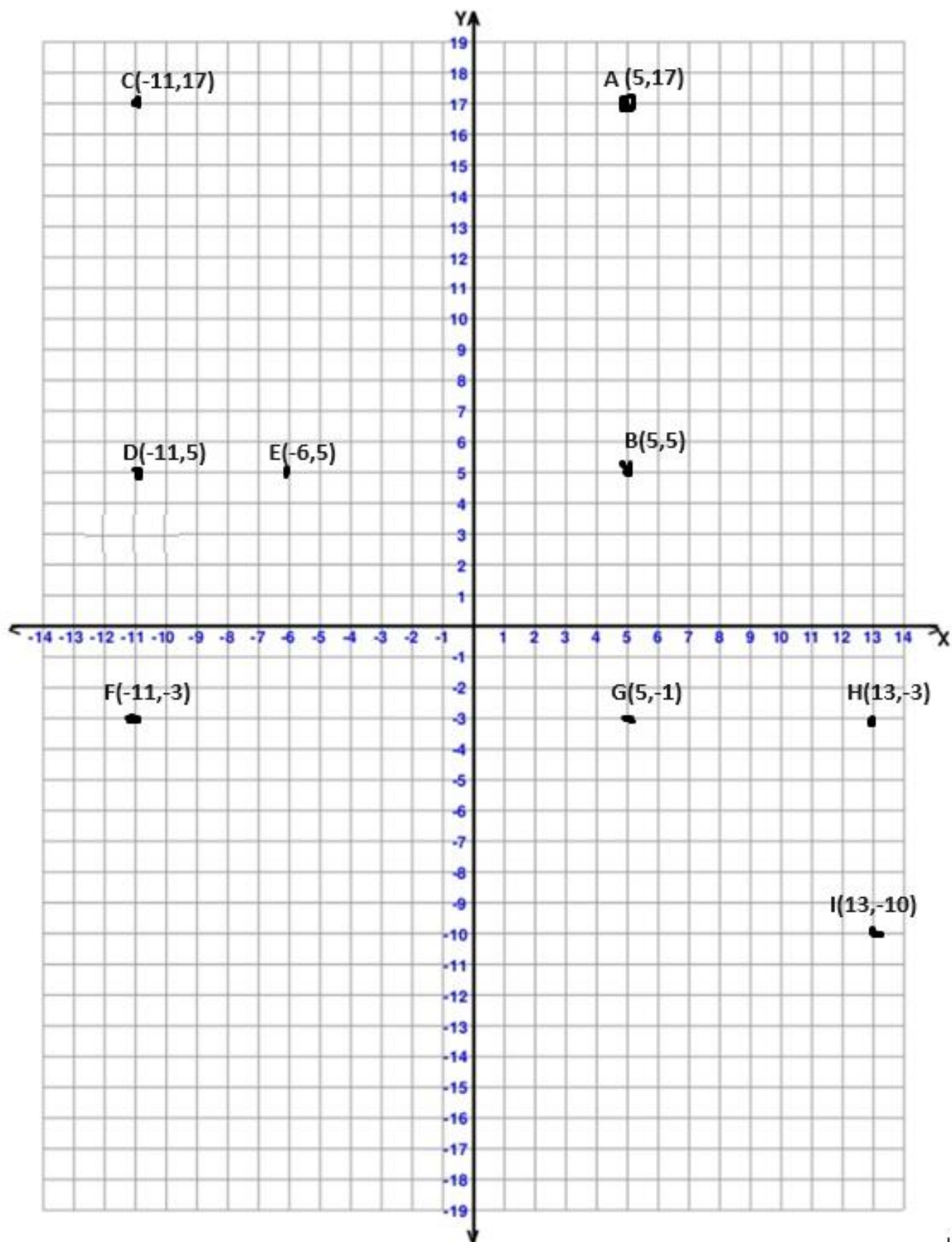
2) Find the distance for each of the segments

CD - 12DE - 5

Now, use a folded copy of the Cartesian Plane and use it as a ruler to find the distance of CE - 13. Now, use the Pythagorean Theorem to calculate the CE distance (use CD distance for A and DE distance for B to get C).

$$\begin{aligned} A^2 + B^2 &= C^2 \\ (5)^2 + (12)^2 &= C^2 \\ 25 + 144 &= C^2 \\ 13 &= C \end{aligned}$$

CE_{Pyth} - 13.



3) Find the distance for each of the segments

FH - 24 HI - 7

Now, use a folded copy of the Cartesian Plane and use it as a ruler to find the distance of FI - 25. Now, use the Pythagorean Theorem to calculate the FI distance (use HI distance for A and FH distance for B to get C). FI_{Pyth} - 25.

These show how the Pythagorean Theorem is accurate in calculating the hypotenuse of a right triangle.

Use this to calculate the distance between any two points on the Cartesian Plane.

Find the distance between each of these points:

CB - 20 Show your work here:

$$A^2 + B^2 = C^2$$

$$\begin{aligned} A^2 + B^2 &= C^2 \\ (12)^2 + (16)^2 &= C^2 \\ 144 + 256 &= C^2 \\ 400 &= C^2 \\ 20 &= C \end{aligned}$$

AF - 21.26 (rounded)

$$\begin{aligned} A^2 + B^2 &= C^2 \\ (\text{horizontal})^2 + (\text{Vertical})^2 &= C^2 \\ (16)^2 + (14)^2 &= C^2 \\ 256 + 196 &= C^2 \\ 452 &= C^2 \\ 21.26 &= C \end{aligned}$$

CI - 36.12 (rounded)

$$\begin{aligned} A^2 + B^2 &= C^2 \\ (\text{horizontal})^2 + (\text{Vertical})^2 &= C^2 \\ (24)^2 + (27)^2 &= C^2 \\ 576 + 729 &= C^2 \\ 1305 &= C^2 \\ 36.12 &= C \end{aligned}$$

