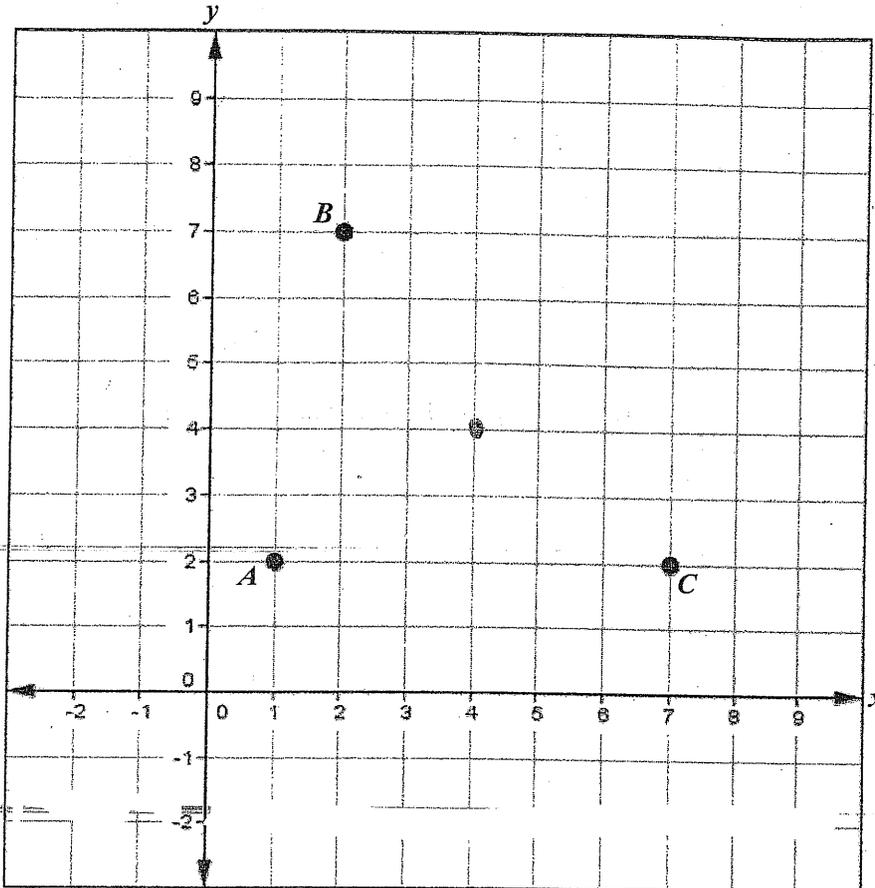


# Student A

Three houses are located at points A, B, and C on the map below.

A bus stop will be built that is equidistant to all 3 houses.

- a) Find the coordinates of the location for the bus stop. Explain your solution strategy and justify that your solution is correct.



$$(1, 2) \quad (4, 4)$$

$$\begin{aligned} A: \quad d &= \sqrt{(4-1)^2 + (4-2)^2} \\ d &= \sqrt{(3)^2 + (2)^2} \\ d &= \sqrt{9 + 4} \\ d &= \sqrt{13} \\ &3.61 \end{aligned}$$

$$(7, 2) \quad (4, 4)$$

$$\begin{aligned} C: \quad d &= \sqrt{(4-7)^2 + (4-2)^2} \\ d &= \sqrt{(-3)^2 + (2)^2} \\ d &= \sqrt{9 + 4} \\ d &= \sqrt{13} \\ &3.61 \end{aligned}$$

$$(2, 7) \quad (4, 4)$$

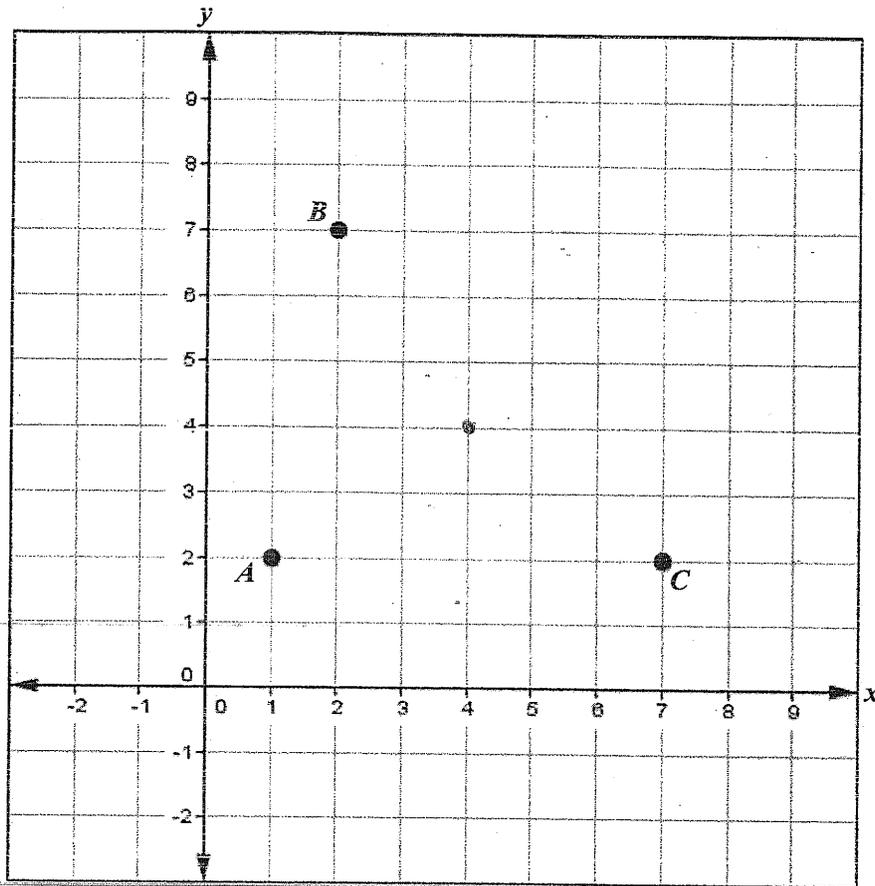
$$\begin{aligned} B: \quad d &= \sqrt{(4-2)^2 + (4-7)^2} \\ d &= \sqrt{(2)^2 + (-3)^2} \\ d &= \sqrt{4 + 9} \\ d &= \sqrt{13} \\ &3.61 \end{aligned}$$

$$(4, 4)$$

I used rise over run to make an educated guess then checked them by using the distance formula.

# Student A

- b) How would you determine locations on the map for other houses that would also be equidistant from the bus stop? Explain your reasoning.



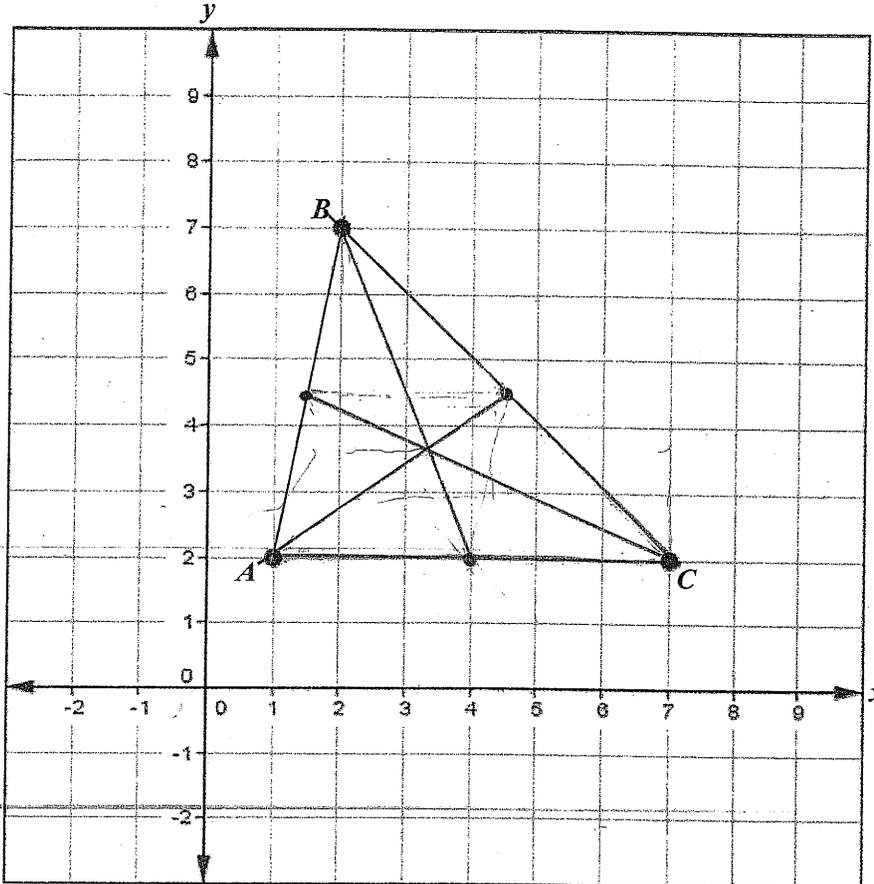
I could use the slope formula, the distance formula, or since I know one <sup>end</sup> point, the midpoint, and the distance I could plug that in to an equation.

# Student B

Three houses are located at points A, B, and C on the map below.

A bus stop will be built that is equidistant to all 3 houses.

- a) Find the coordinates of the location for the bus stop. Explain your solution strategy and justify that your solution is correct.



$$\begin{aligned} AC) & \frac{7+1}{2}, \frac{2+2}{2} \\ & \frac{8}{2}, \frac{4}{2} \\ & (4, 2) \end{aligned}$$

$$(3\frac{1}{4}, 3\frac{3}{4})$$

Step 1 find midpoints of lines

$$\begin{aligned} BC) & \frac{7+2}{2}, \frac{7+2}{2} \\ & \frac{9}{2}, \frac{9}{2} \\ & (4.5, 4.5) \end{aligned}$$

U.S

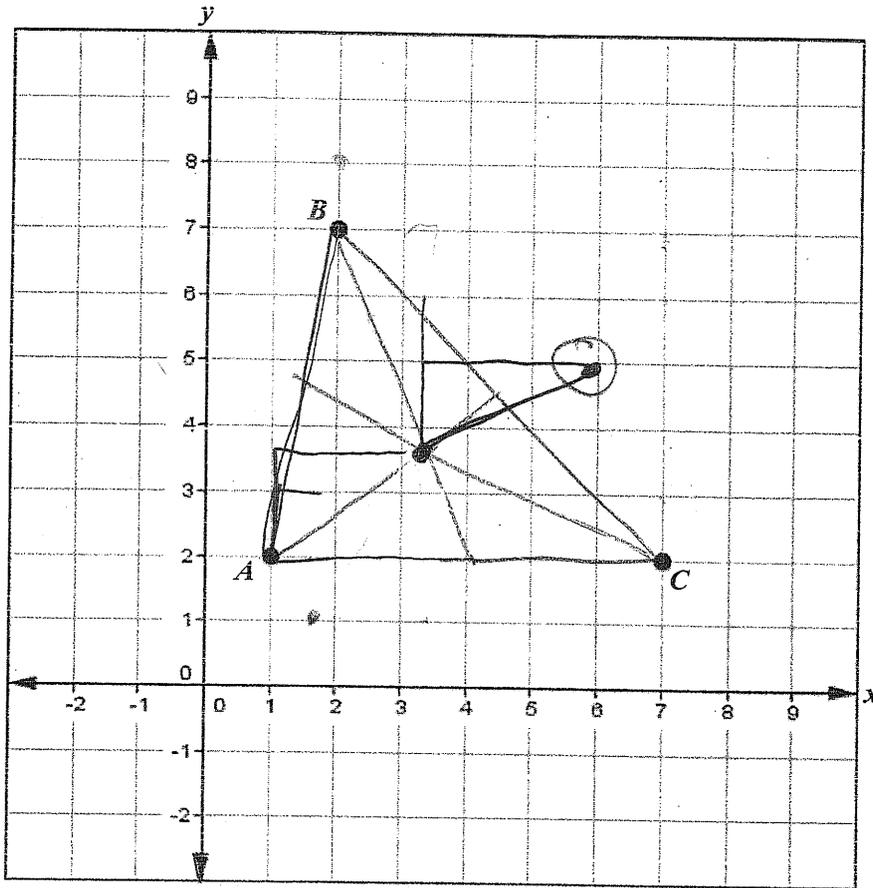
Step 2 - Create Medians

Point found is the Bus stop

$$\begin{aligned} AB & \frac{1+2}{2}, \frac{2+7}{2} \\ & (1.5, 4.5) \end{aligned}$$

# Student B

- b) How would you determine locations on the map for other houses that would also be equidistant from the bus stop? Explain your reasoning.



Found the distance from A to centroid, found point with same distance

$$\sqrt{(1-3.5)^2 + (2-3.5)^2}$$
$$0.25 + 2.25$$
$$\textcircled{8.5}$$

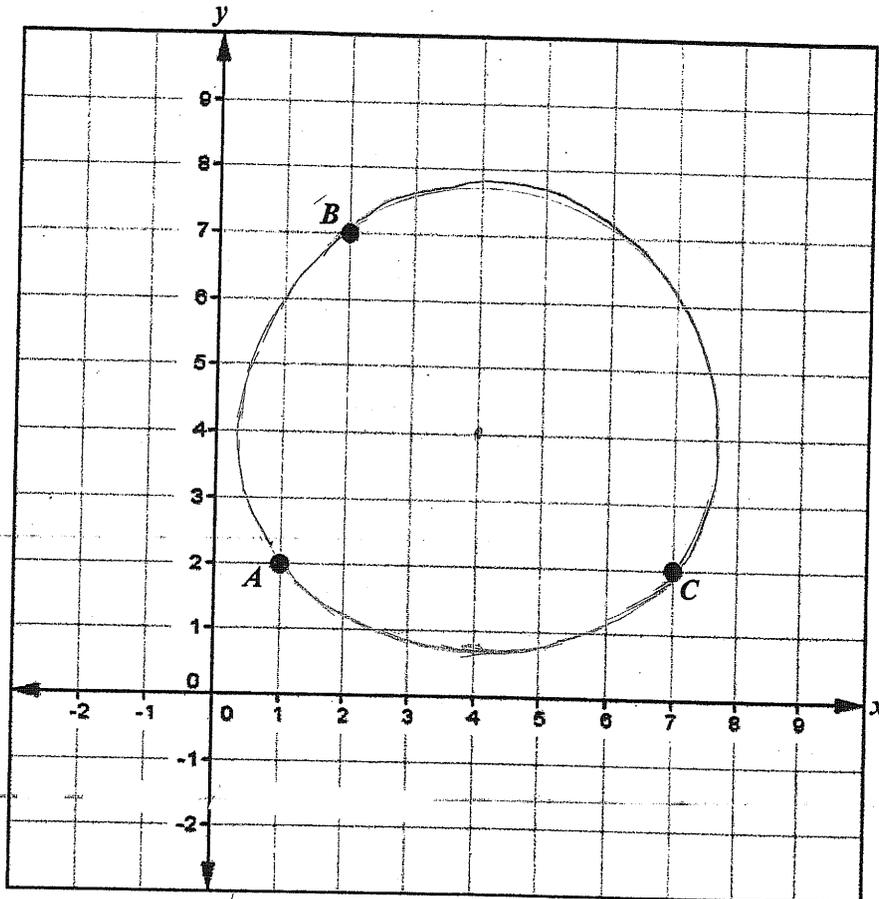
$$\sqrt{(3.5-6)^2 + (3.5-5)^2}$$
$$0.25 + 2.25$$
$$\textcircled{8.5}$$

# Student C

Three houses are located at points A, B, and C on the map below.

A bus stop will be built that is equidistant to all 3 houses.

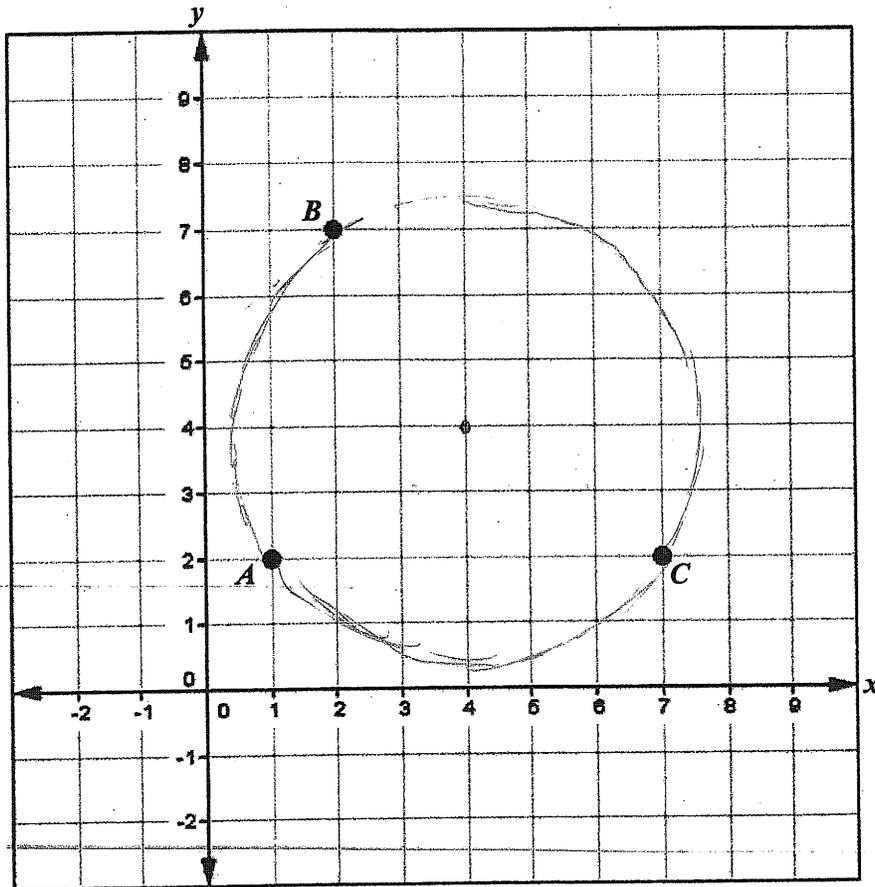
- a) Find the coordinates of the location for the bus stop. Explain your solution strategy and justify that your solution is correct.



I used a compass to make a circle that connected all of the points. The mid point of the circle is the center of the points  $(4, 4)$

# Student C

- b) How would you determine locations on the map for other houses that would also be equidistant from the bus stop? Explain your reasoning.



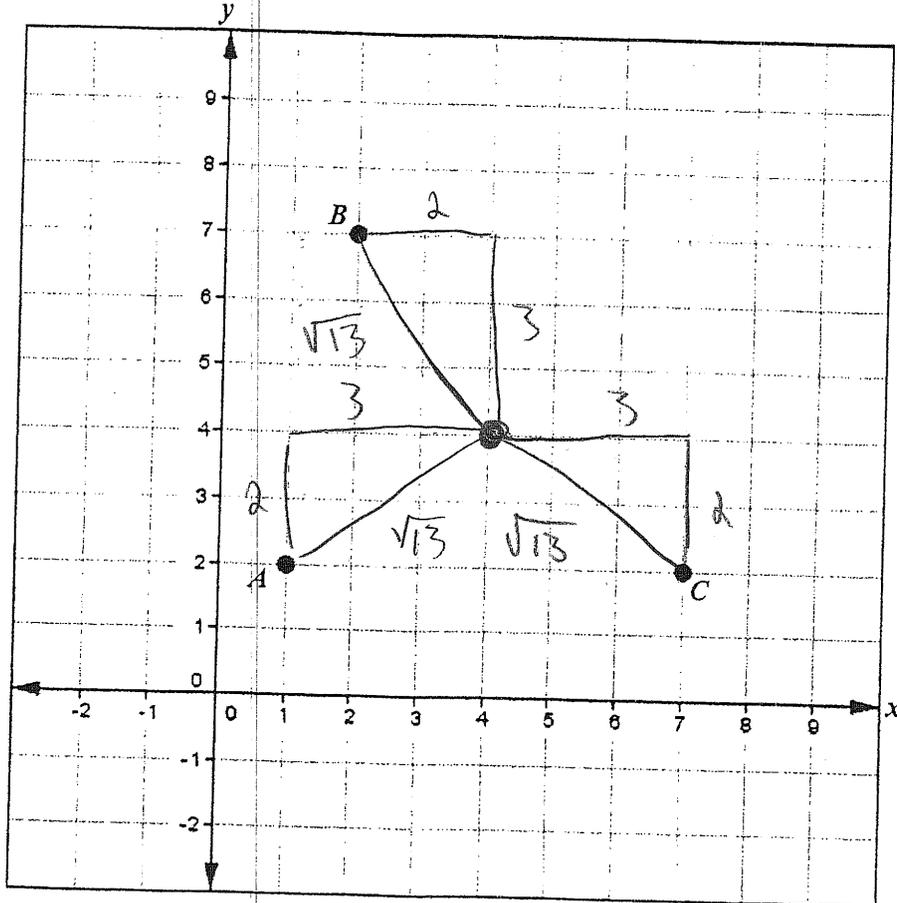
any where else on the circle  
would also be equidistant from the bus stop

# Student D

Three houses are located at points A, B, and C on the map below.

A bus stop will be built that is equidistant to all 3 houses.

- a) Find the coordinates of the location for the bus stop. Explain your solution strategy and justify that your solution is correct.



4,4

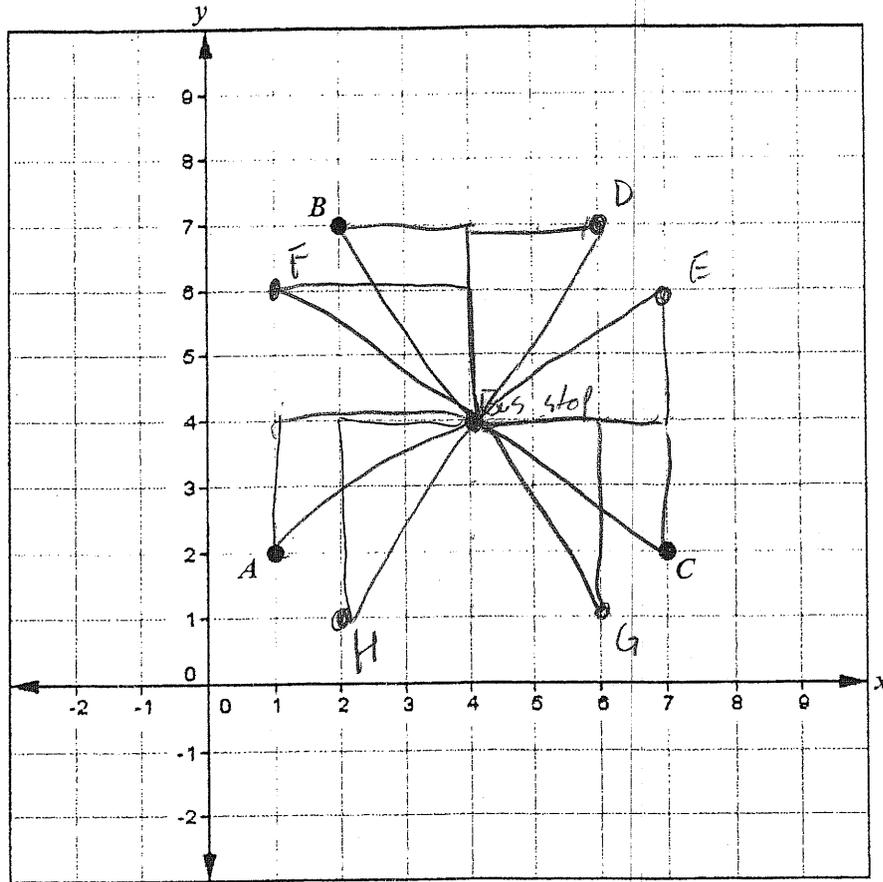
$$A^2 + B^2 = C^2$$

C = Distance from Bus stop

4,4 is  $\sqrt{13}$  from all houses, found by using  $A^2 + B^2 = C^2$

# Student D

- b) How would you determine locations on the map for other houses that would also be equidistant from the bus stop? Explain your reasoning.



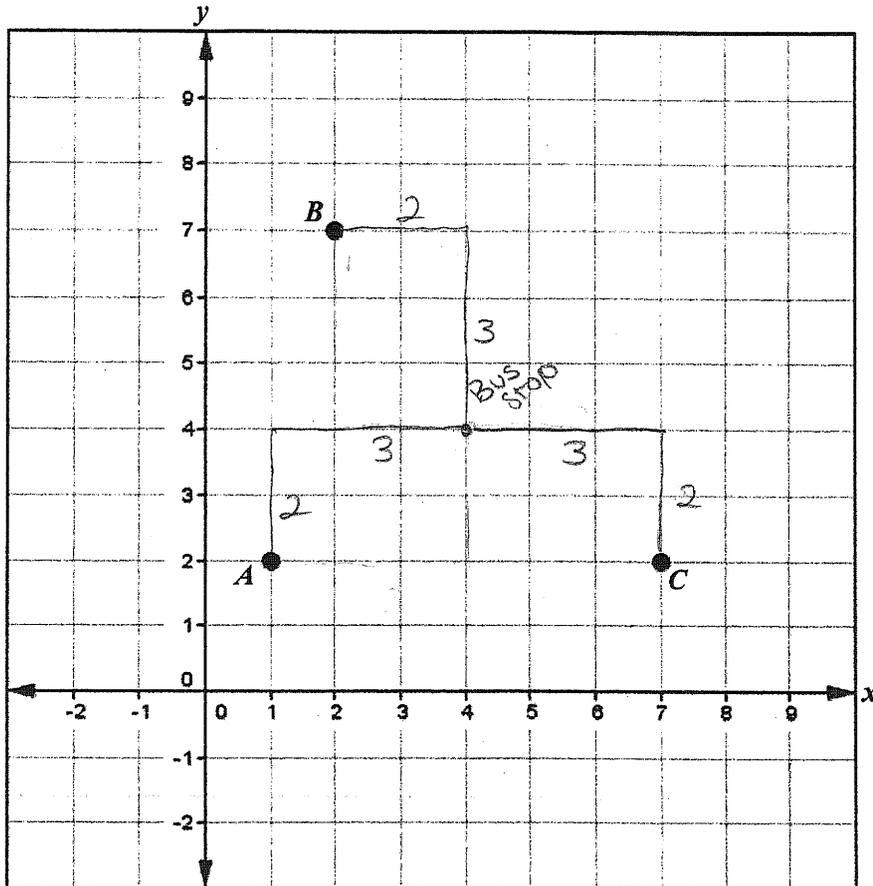
Use the legs of the triangle used  
to find  $(4, 4)$  which is 3 and 2,

# Student E

Three houses are located at points A, B, and C on the map below.

A bus stop will be built that is equidistant to all 3 houses.

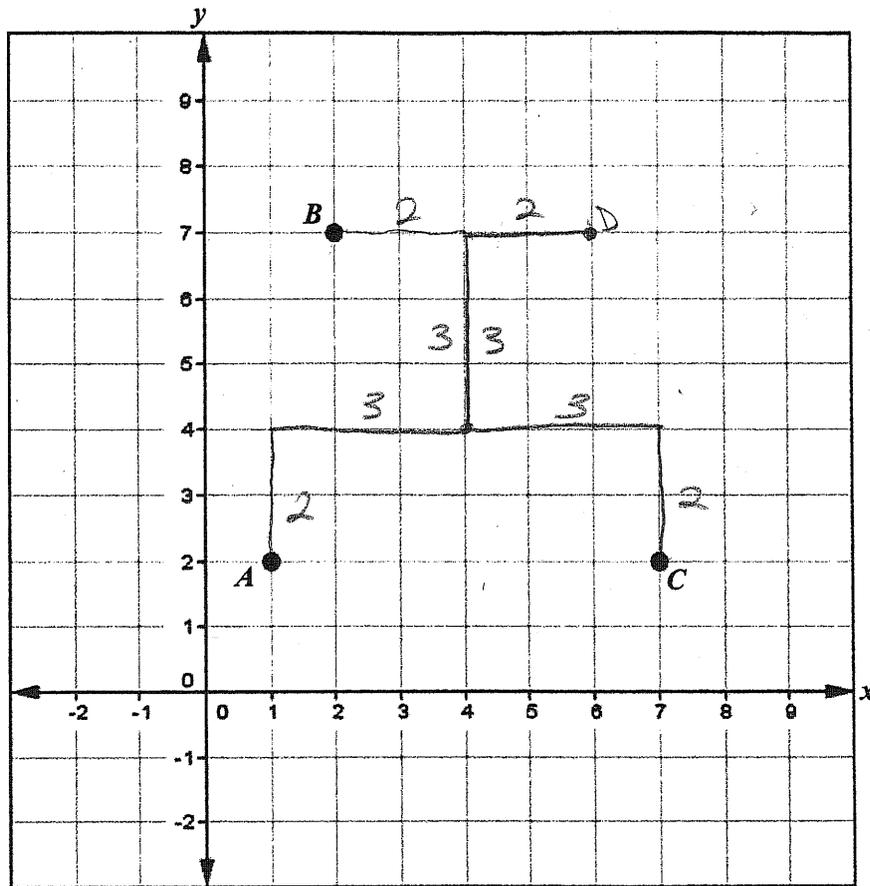
- a) Find the coordinates of the location for the bus stop. Explain your solution strategy and justify that your solution is correct.



They are have to walk the same amount of squares. They all walk 2 blocks then turn and walk three block to the bus stop.

# Student E

- b) How would you determine locations on the map for other houses that would also be equidistant from the bus stop? Explain your reasoning.



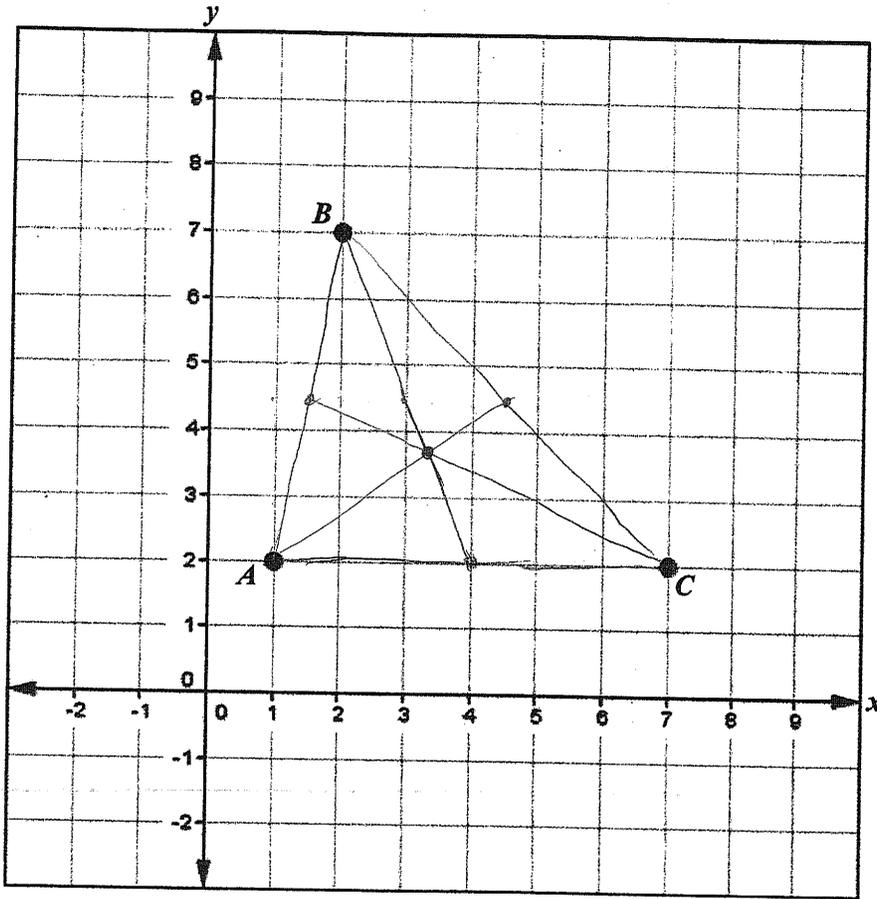
A - 2 then 3  
B - 2 then 3  
C - 2 then 3  
D - 2 then 3

They all have to walk the same amount of squares to the bus stop. Each walks 2 blocks then turns and walks 3 blocks to the bus stop.

Three houses are located at points A, B, and C on the map below.

A bus stop will be built that is equidistant to all 3 houses.

- a) Find the coordinates of the location for the bus stop. Explain your solution strategy and justify that your solution is correct.



$$A = (1, 2)$$

$$B = (2, 7)$$

$$C = (7, 2)$$

$$x = \frac{1+2+7}{3}$$

$$y = \frac{2+7+2}{3}$$

$$x = \frac{10}{3} \text{ or } 3\frac{1}{3}$$

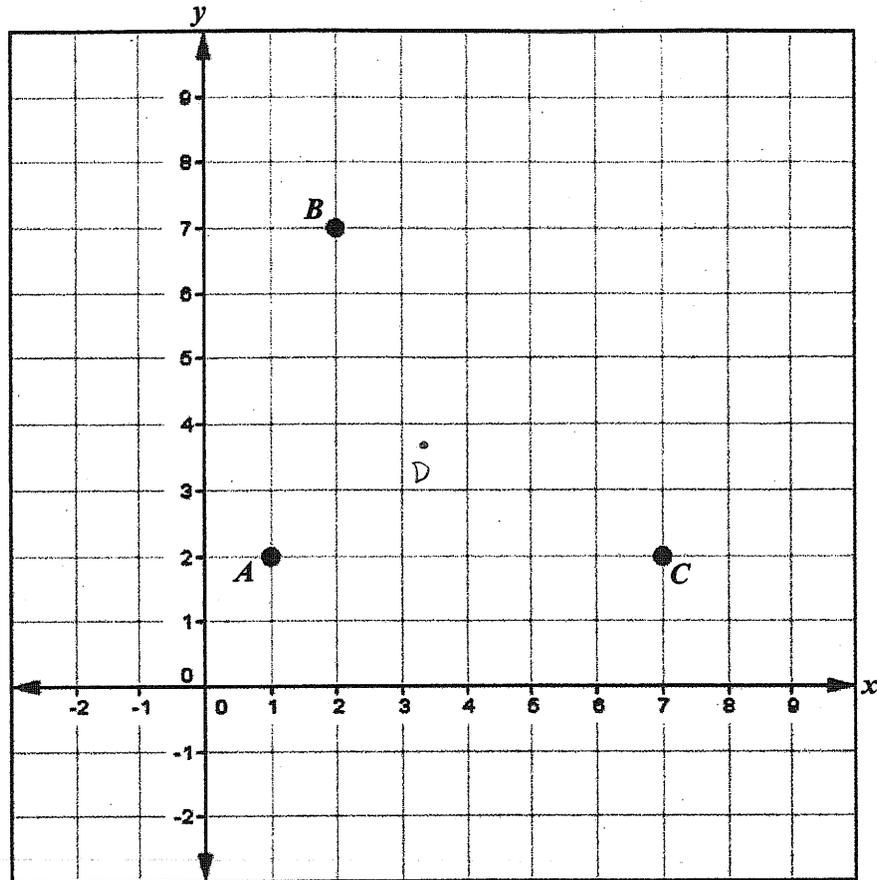
$$y = \frac{11}{3} \text{ or } 3\frac{2}{3}$$

\* All you need to do is average the x values and y values.

$$\left(3\frac{1}{3}, 3\frac{2}{3}\right)$$

# Student F

- b) How would you determine locations on the map for other houses that would also be equidistant from the bus stop? Explain your reasoning.



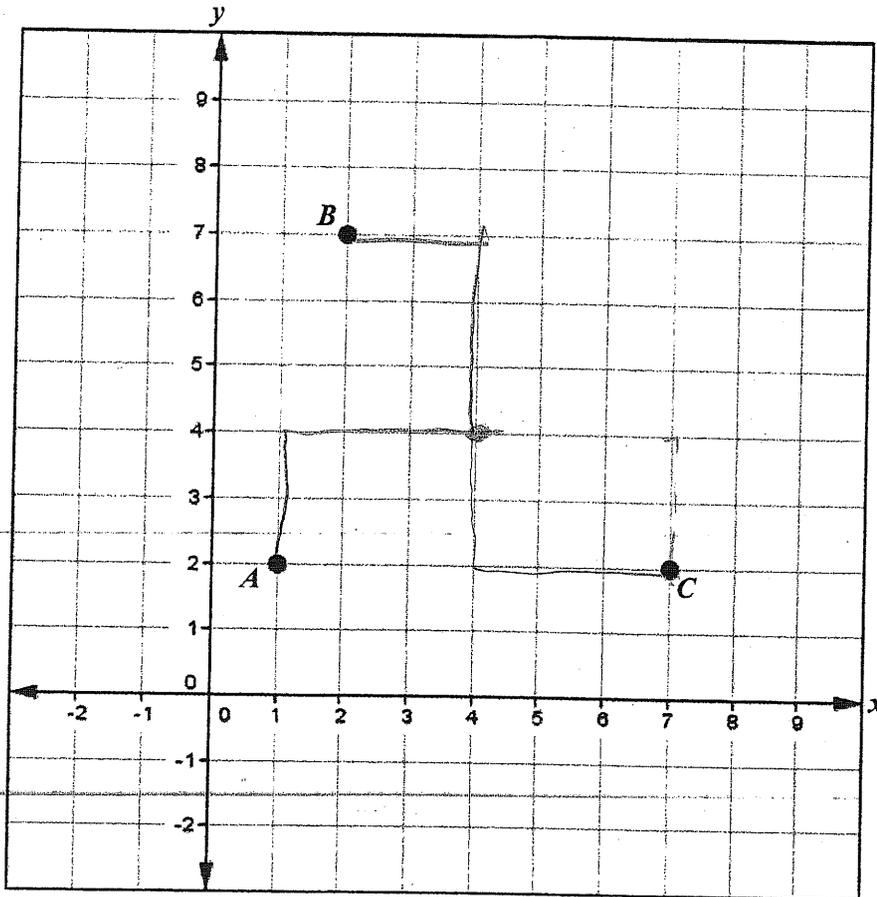
\* To find other equidistant locations you just add in another coordinate that fits the average coordinates

# Student G

Three houses are located at points A, B, and C on the map below.

A bus stop will be built that is equidistant to all 3 houses.

- a) Find the coordinates of the location for the bus stop. Explain your solution strategy and justify that your solution is correct.

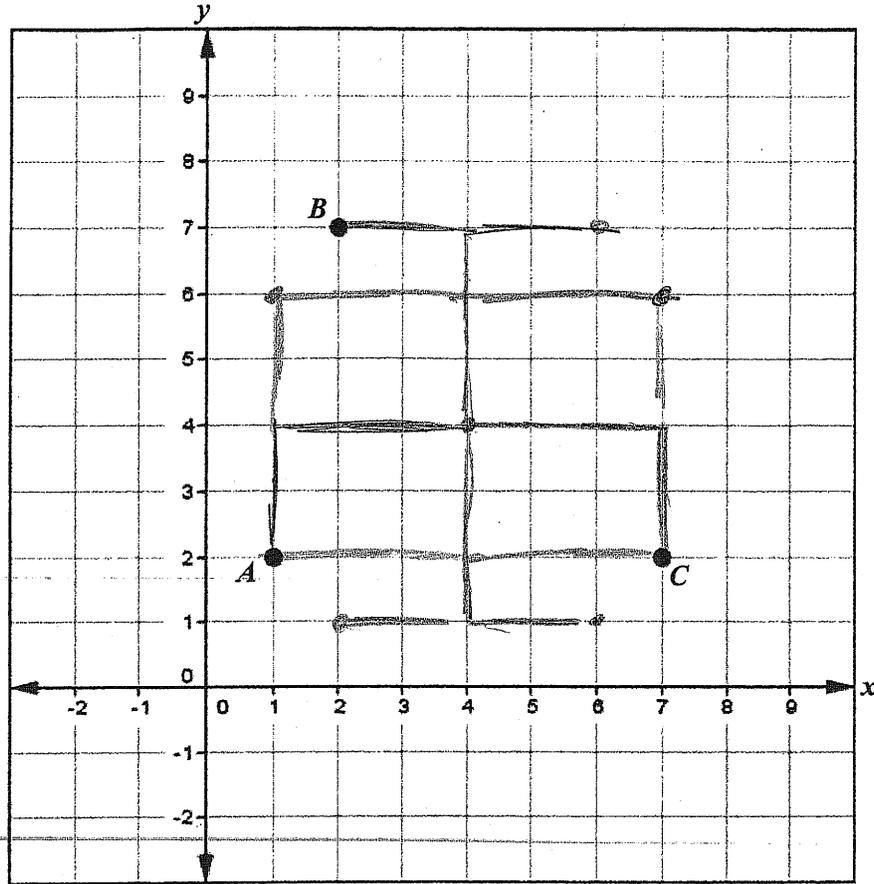


$(4, 4)$

Rise over run can be used to measure distance. The rise over run for A:  $2/3$  B:  $2/-3$  C:  $-2/3$   
All are variations of each other.  
So, they are all equidistant.

# Student G

- b) How would you determine locations on the map for other houses that would also be equidistant from the bus stop? Explain your reasoning.



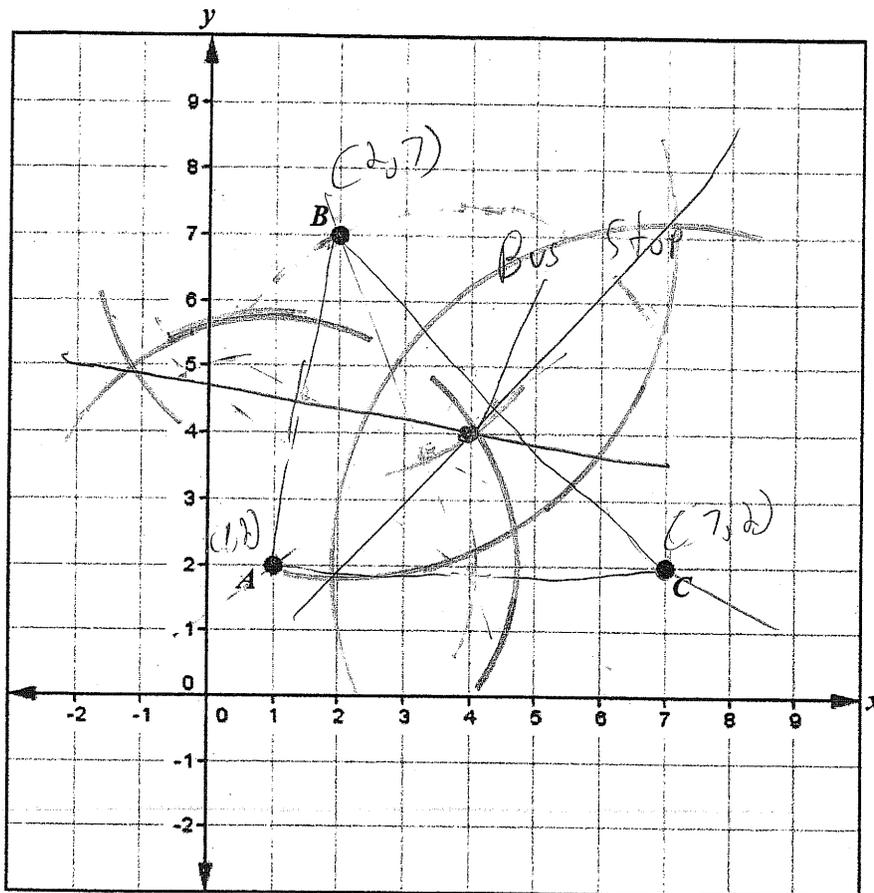
You would continue to use rise over run with variations of  $\frac{2}{3}$ .

# Student H

Three houses are located at points A, B, and C on the map below.

A bus stop will be built that is equidistant to all 3 houses.

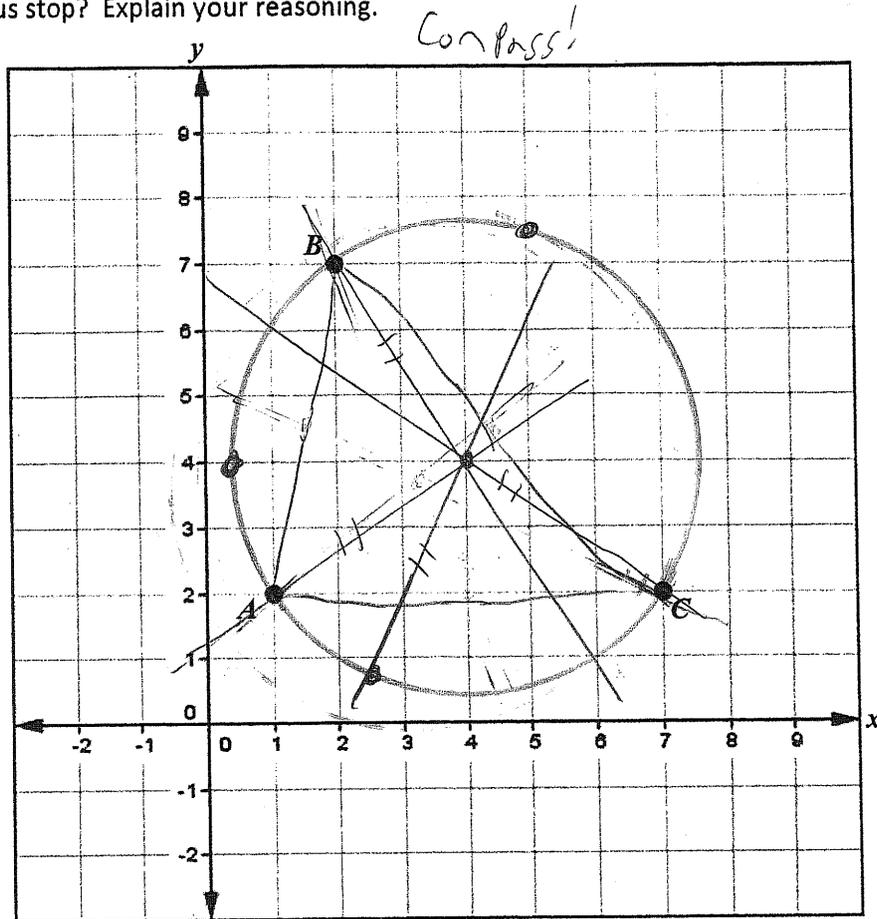
- a) Find the coordinates of the location for the bus stop. Explain your solution strategy and justify that your solution is correct.



By finding the circumcenter I have found  
the point at which there will be an equal distance  
between itself and all of the 3 vertices.  
this point seems to be  $(4, 4)$

# Student H

- b) How would you determine locations on the map for other houses that would also be equidistant from the bus stop? Explain your reasoning.



By measuring from the circumference to the vertices, one can draw a circle with a compass that defines all points that are equidistant.

When the compass permits,

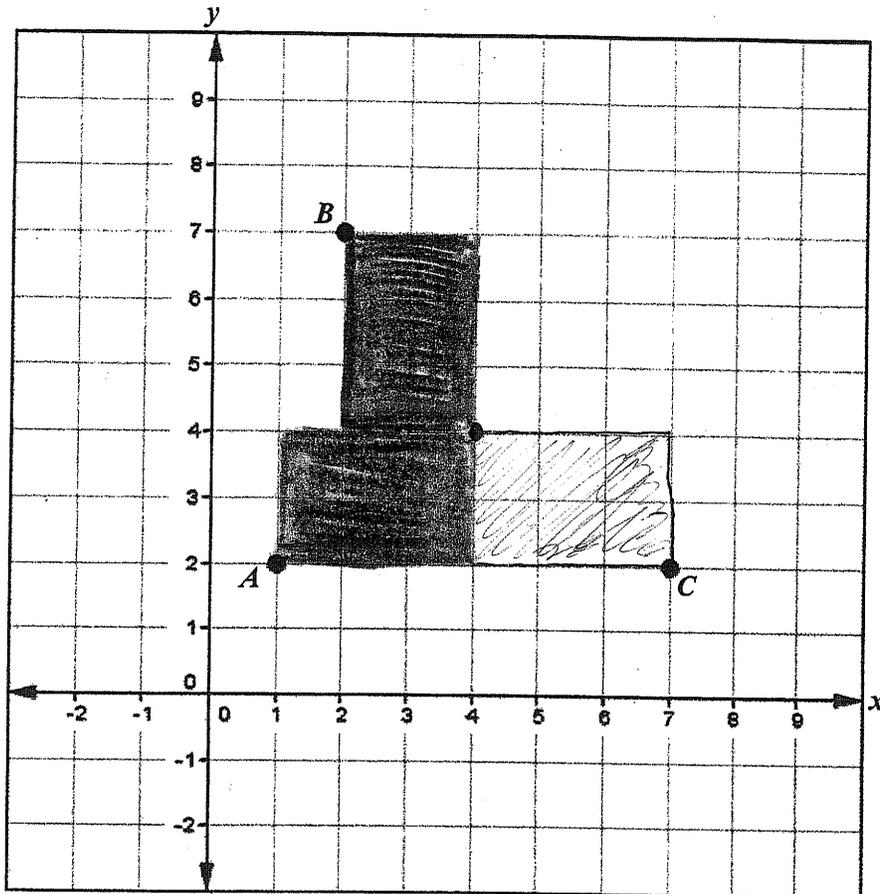
all the points on the circle are of equal distance from the center, or else there wouldn't be a circle.

## Student I

Three houses are located at points A, B, and C on the map below.

A bus stop will be built that is equidistant to all 3 houses.

- a) Find the coordinates of the location for the bus stop. Explain your solution strategy and justify that your solution is correct.

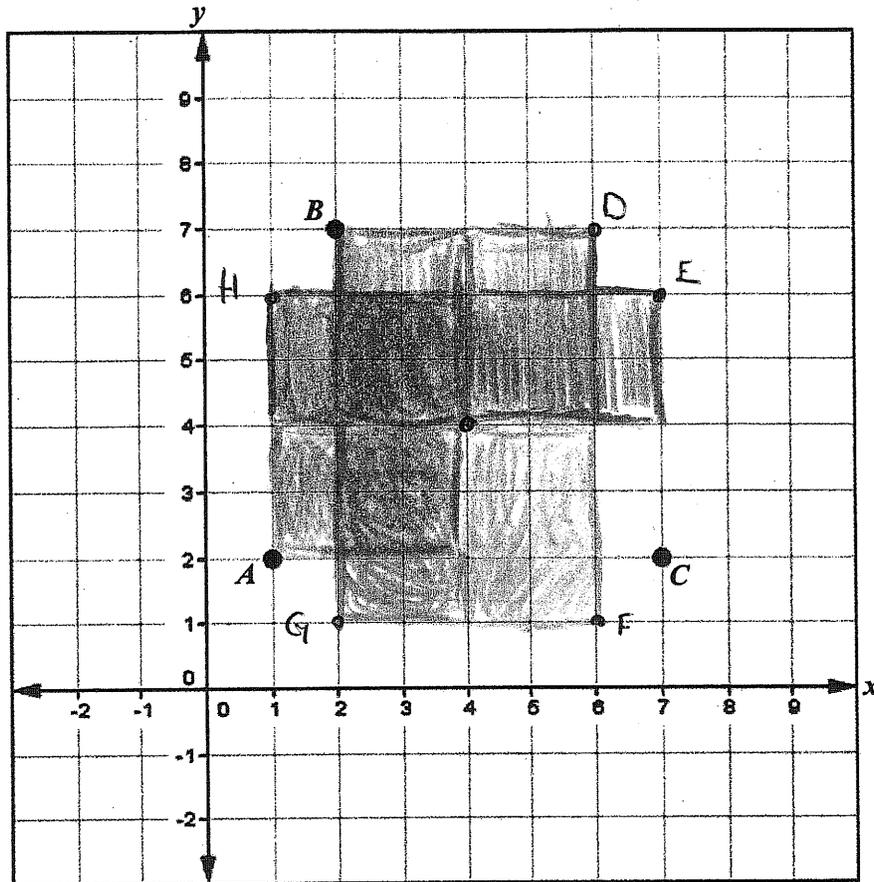


Bus stop:  $(4, 4)$

each house is located 2 & 3 units away from the bus stop. for example, house 'A' is 3 units right + 2 units up from the stop. ~~Bus~~ house 'B' is 3 units down 2 units right or could be switched to 2 units right + 3 units down. Creates a 2x3 rectangle w/ each house

# Student I

- b) How would you determine locations on the map for other houses that would also be equidistant from the bus stop? Explain your reasoning.



2 x 3 units away from stop.