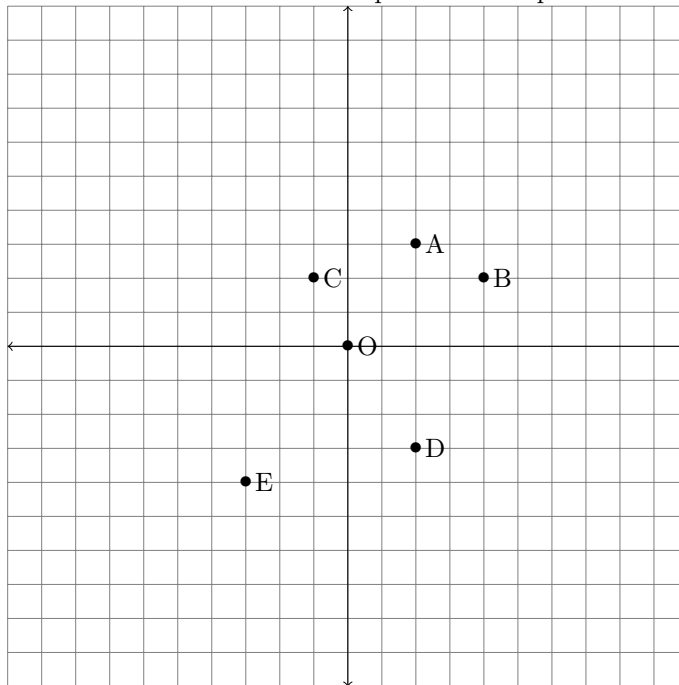


LAMC Spring Meeting 2

Preston Carroll

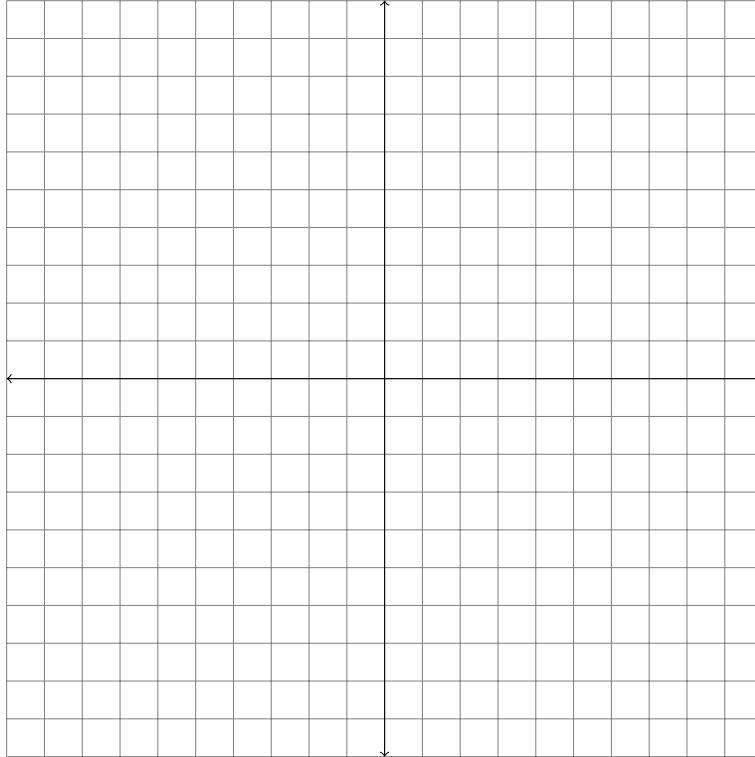
April 15, 2018

1. Find the coordinates of several points on the plane:



- (a) Point O has address (,);
- (b) Point A has address (,);
- (c) Point B has address (,);
- (d) Point C has address (,);
- (e) Point D has address (,);
- (f) Point E has address (,);
- (g) The midpoint between A and D has address (,);
(Hint: The midpoint is the point on segment AD which is the same distance to A as it is to D. You can think of it as the “middle”).

2. Let's plot several points whose coordinates are given:

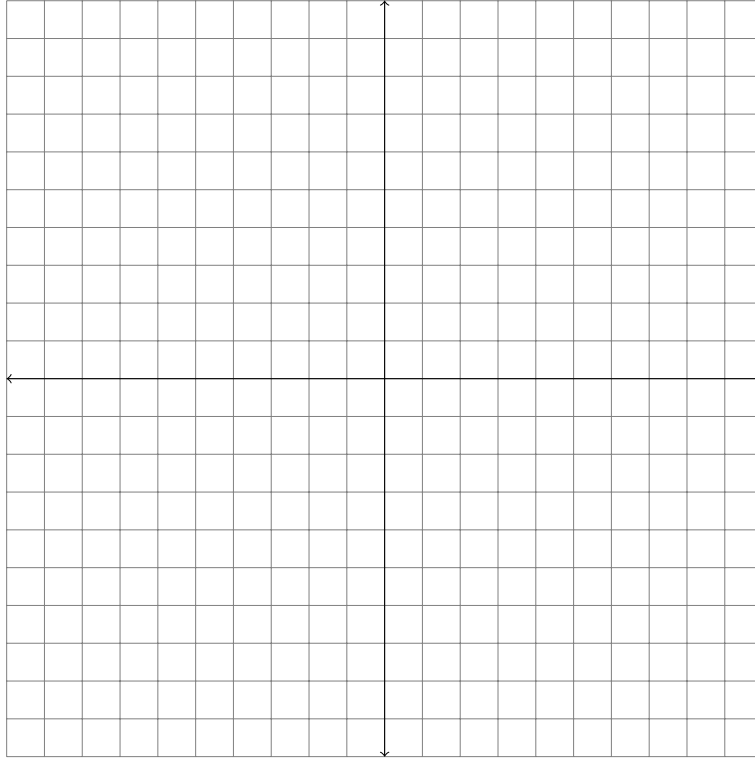


- (a) Plot point F with address $(1,4)$;
- (b) Plot point G with address $(4,1)$;
- (c) Plot point H with address $(5,3)$;
- (d) Plot point J with address $(2,5)$;
- (e) Plot point K with address $(0,2)$;
- (f) Plot point L with address $(3,0)$.

3. Let n be any whole number. Describe where the points with the following addresses are located:

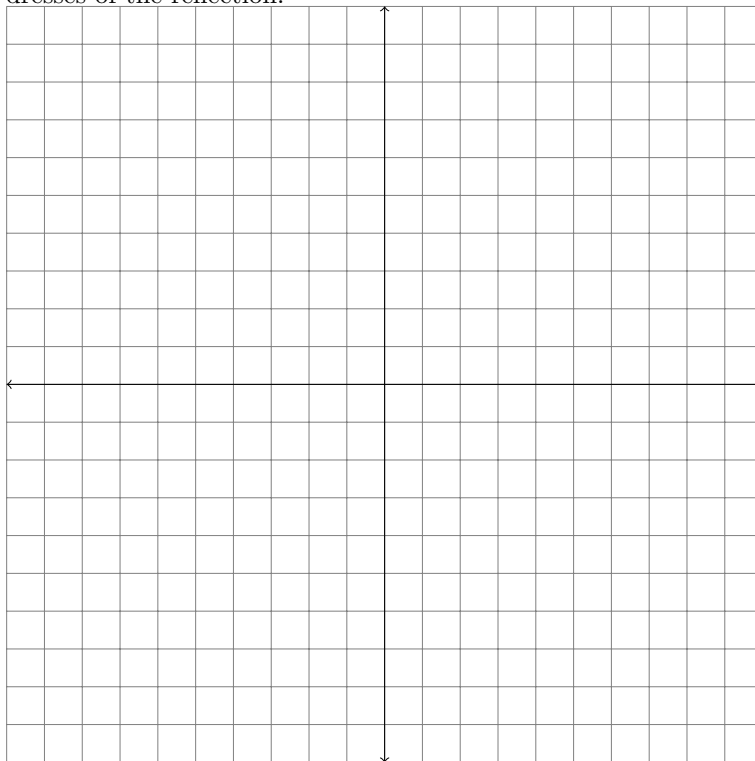
- (a) with addresses $(n,0)$;
- (b) with addresses $(0,n)$;
- (c) with addresses $(n,5)$;
- (d) with addresses $(5,n)$;
- (e) with addresses (n,n) ;

4. Plot the points and find the distance between the following points:



- (a) $(4,3)$ and $(4,7)$; Distance =
- (b) $(-1,3)$ and $(-1,5)$; Distance =
- (c) $(6,5)$ and $(8,5)$; Distance =
- (d) $(5,-2)$ and $(7,-2)$; Distance =

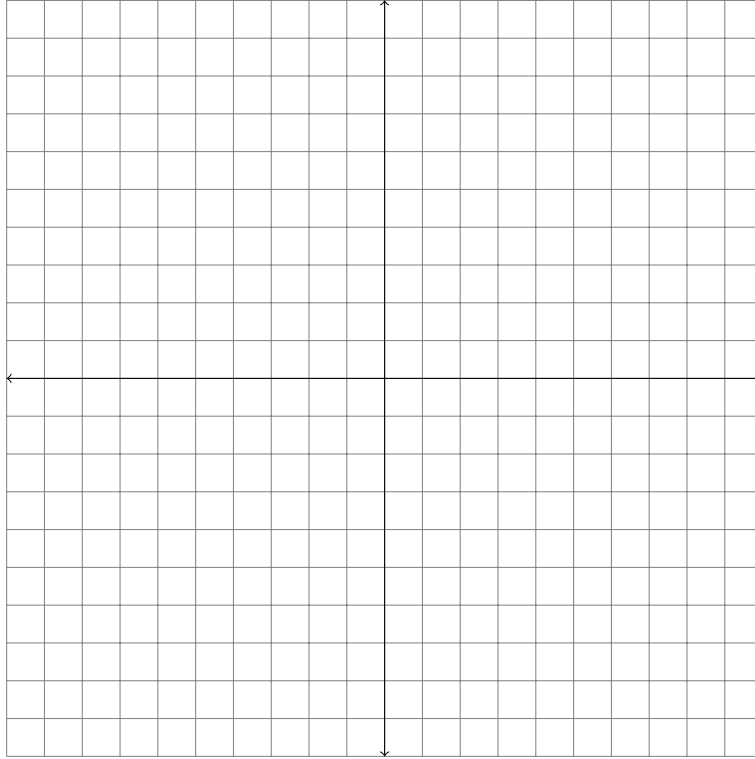
5. Now imagine that the x-axis is mirror. Plot the points and find the addresses of the reflection.



- (a) $(2,3)$ Reflection: (\quad , \quad)
(b) $(5,1)$ Reflection: (\quad , \quad)
(c) $(-6,2)$ Reflection: (\quad , \quad)
(d) $(-3,4)$ Reflection: (\quad , \quad)
(e) Does the x-coordinate change when you reflect a point across the x-axis? If so, how?

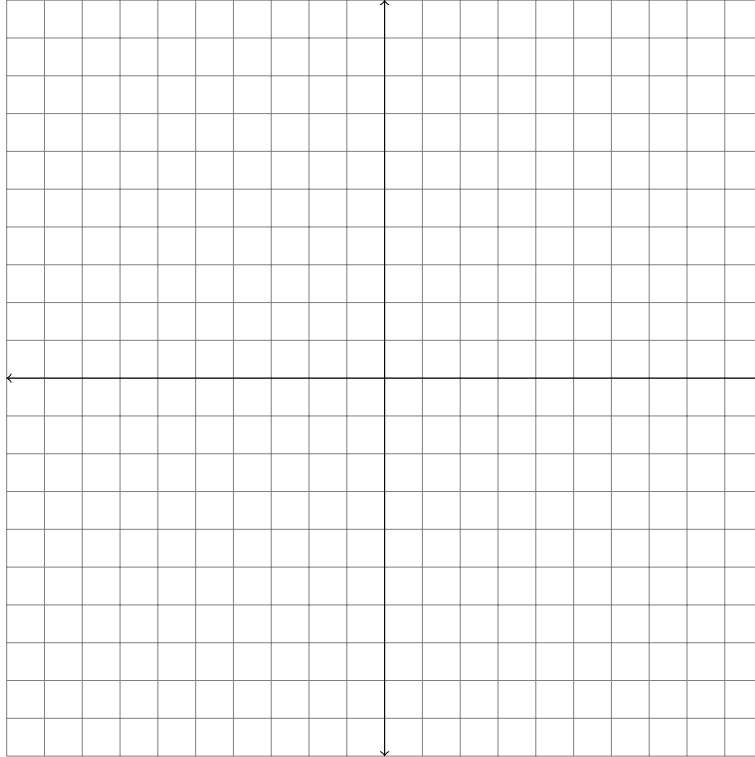
(f) Does the y-coordinate change when you reflect a point across the x-axis? If so, how?

6. Now imagine that the y-axis is mirror. Plot the points and write down the addresses of the reflection.



- (a) (2,3) Reflection: (,)
- (b) (5,1) Reflection: (,)
- (c) (-6,2) Reflection: (,)
- (d) (-3,4) Reflection: (,)
- (e) Does the x-coordinate change when you reflect it across the y-axis?
If so, how?
- (f) Does the y-coordinate change when you reflect it across the y-axis?
If so, how?

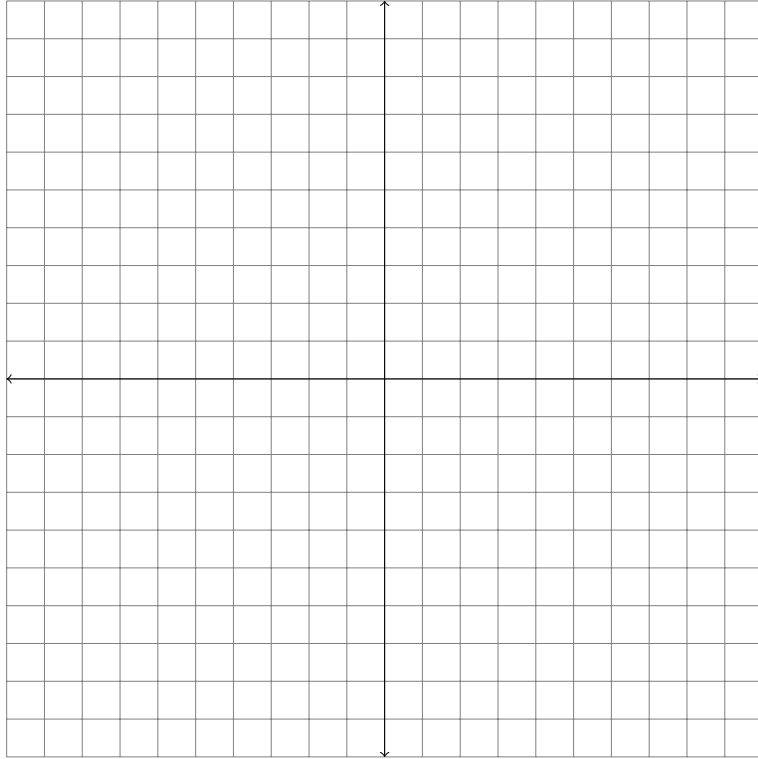
7. Draw the following route starting at $(0,0)$



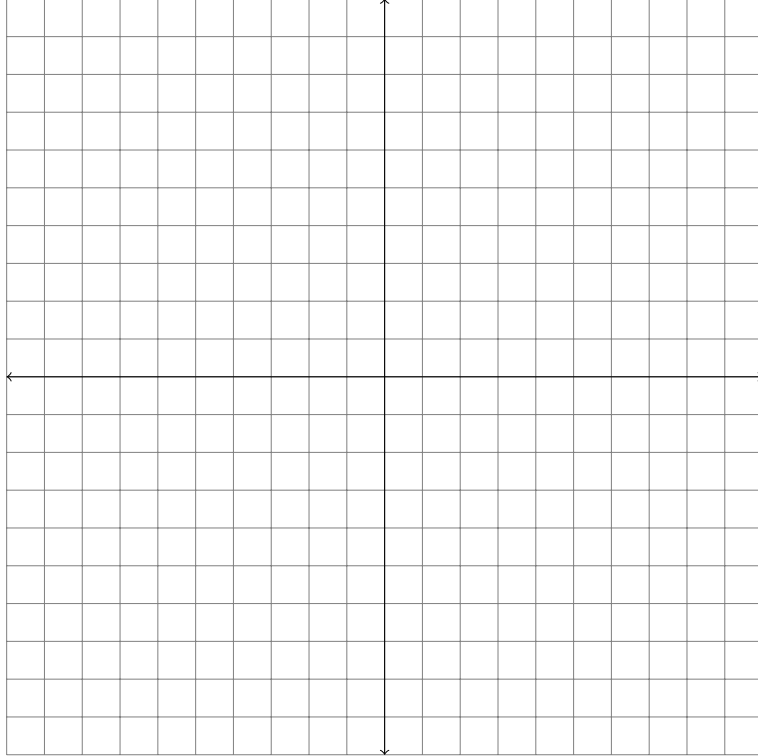
- Go north (up) for two units;
- Go east (right) for 5 units;
- Go south for 1 unit;
- Go west for 1 unit.

Where are you now? Give the address of the final point.

8. Sylvia drew a square with vertical and horizontal sides on the plane. Kristi erased part of the square so that only the two vertices, $(2,3)$ and $(5,3)$, remained. Draw all possible squares (There is more than one answer).



9. Sylvia drew a new square with vertical and horizontal sides on the plane. Kristi erased part of the square so that only the two vertices, $(0,0)$ and $(4,4)$, remained. Draw all possible squares (There is more than one answer).



10. The houses of Amy, Ben, Cindy and Dan are vertices of a square:

- The center of this square is at the point $O=(0,0)$;
- The length of each of the sides of this square equals to 4;
- Amy's house is directly to the north from Dan's house;
- Ben's house is east from Amy's house;

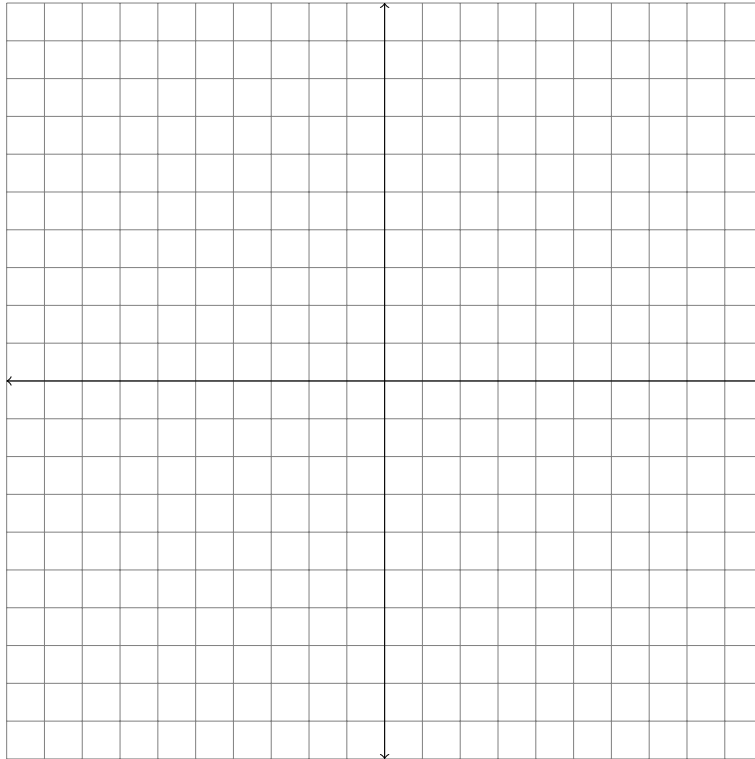
Denote the vertices of this square by A,B,C,D. Mark the houses (vertices) on the picture below and find their addresses:

$$A = (\quad , \quad),$$

$$B = (\quad , \quad),$$

$$C = (\quad , \quad),$$

$$D = (\quad , \quad).$$



11. The houses of Eddie, Fred, George, and Helen also form a square:

- The center of this square is at the point $O=(0,0)$;
- The distance from O to any of these houses is 2;
- George's house is east of Eddie's house;
- Fred's house is north of Helen's house;
- Denote the vertices of this square by E,F,G,H .

Denote the vertices of this square by E,F,G,H . Mark the houses (vertices) on the picture below and find their addresses:

$$E = (\quad , \quad),$$

$$F = (\quad , \quad),$$

$$G = (\quad , \quad),$$

$$H = (\quad , \quad).$$

