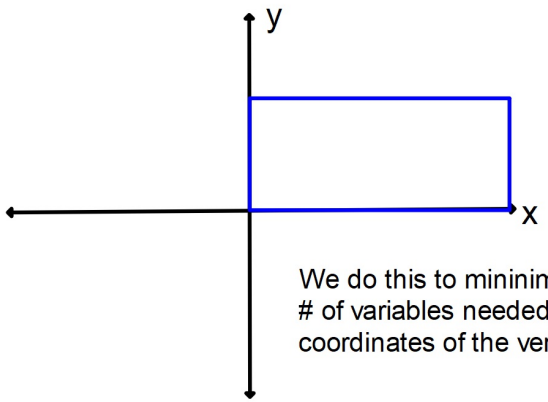
Section 6-6: Placing Figures in the Coordinate Plane.

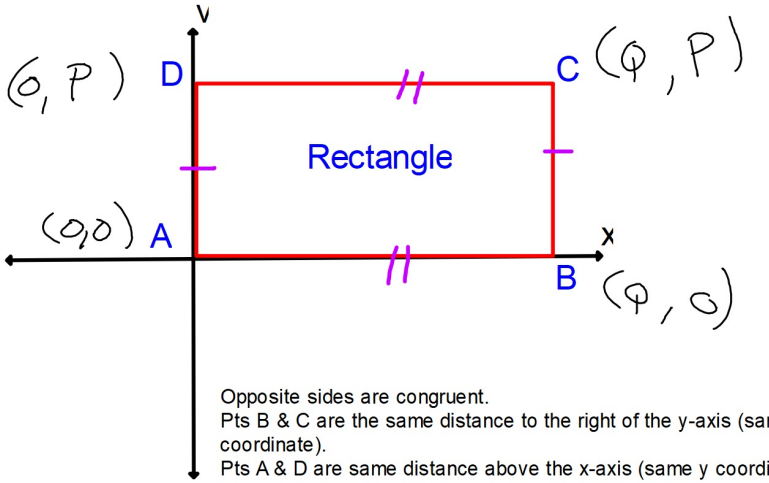
Placing a figure on the coordinate plane in Standard Position

- One vertex is at the origin
- One side is on the pos x-axis
- No neg coordinates



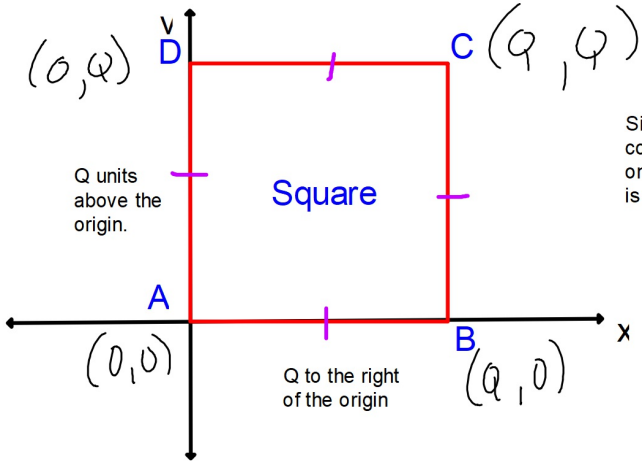
We do this to mininimize the # of variables needed to label the coordinates of the vertices.

Now label the coordinates of the vertices using the fewest number of variables possible.



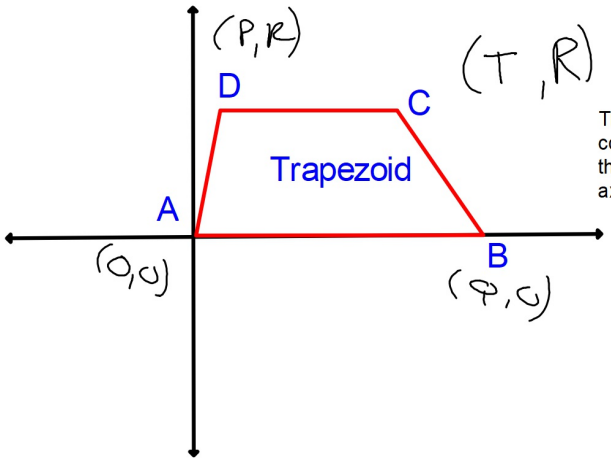
Opposite sides are congruent.
Pts B & C are the same distance to the right of the y-axis (same x coordinate).
Pts A & D are same distance above the x-axis (same y coordinate)

Now label the coordinates of the vertices using the fewest number of variables possible.



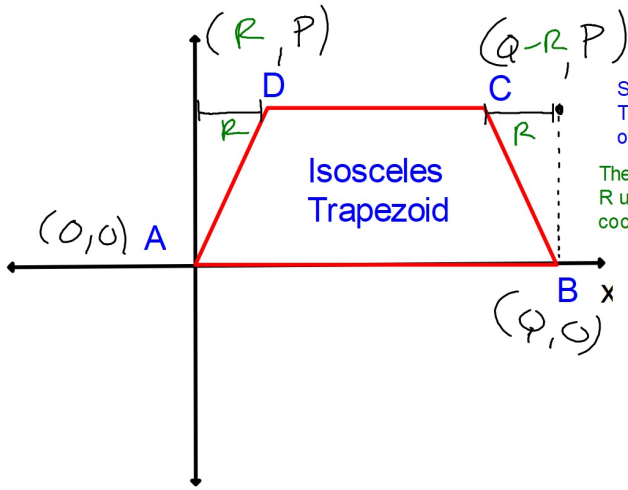
Since all four sides are congruent the distance from one vertex to the next one is the same.

Now label the coordinates of the vertic
the fewest number of variables p



The only relationship amongst the coordinates is that Pts C & D are the same distance above the x-axis (same y-coordinate)

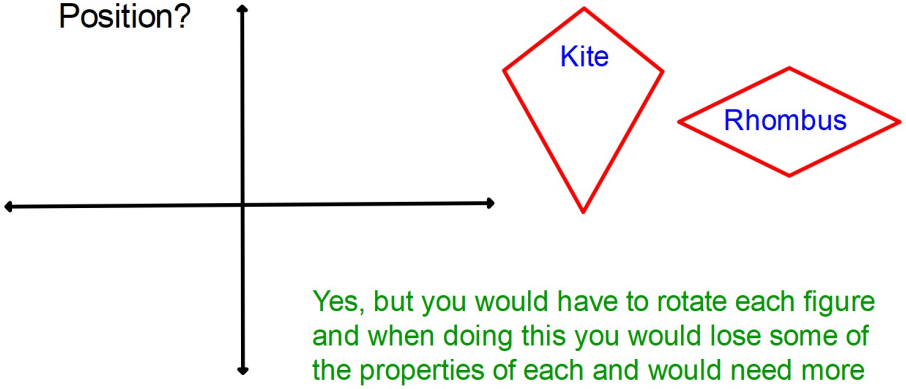
Now label the coordinates of the vertic
the fewest number of variables p



Since this is an Isosceles Trapezoid, $\overline{DC}$ is "centered" over $\overline{AB}$.

The x-coordinate of Pt C is R units to the left of the x-coordinate of Pt. B.

Can you place a kite and a rhombus in Standard Position?

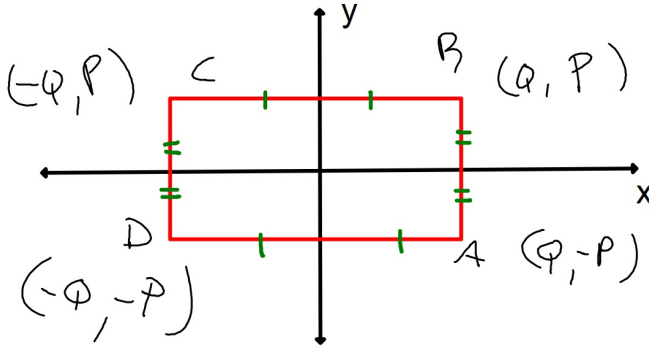


Yes, but you would have to rotate each figure and when doing this you would lose some of the properties of each and would need more variables than if you placed them in some other position.

If you can't or don't want to place a figure in standard position how can you place it on the coordinate plane so as to minimize the number of variables needed to label all of the coordinates?

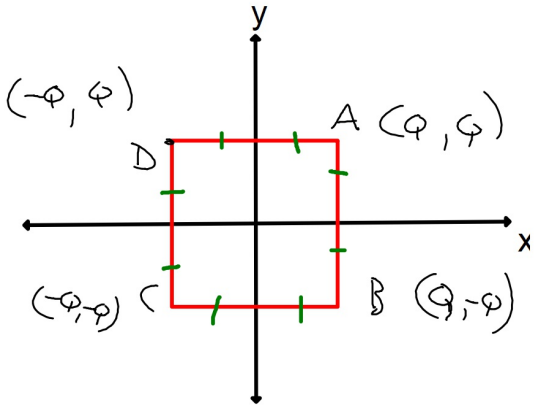
Using the symmetry in a figure allows you to use a minimum number of variables to label the coordinates of all the vertices.

Use the symmetry in a rectangle to place it in the coordinate plane so that the fewest number of variables is needed to label the coordinates of all the vertices.



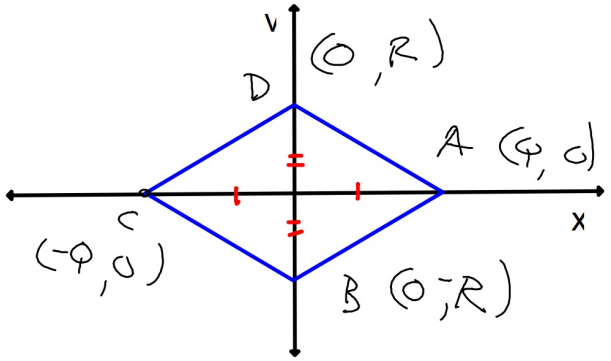
Each axis is a line of symmetry in a Rectangle and each coordinate is the same distance on either side of each axis with the horizontal distances different than the vertical distances since opposite sides are congruent.

Use the symmetry in a square to place it in the coordinate plane so that the fewest number of variables is needed to label the coordinates of all the vertices.



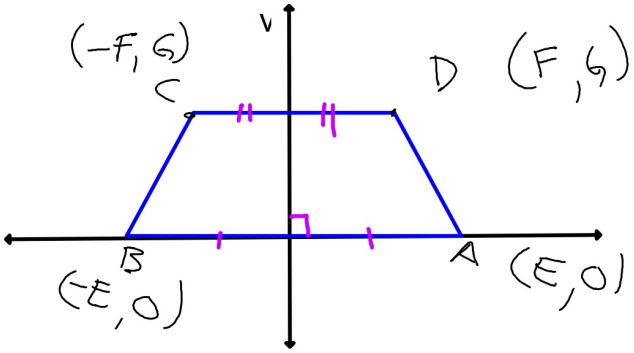
Each axis is a line of symmetry in a Square and each coordinate is the same distance on either side of each axis. But since all four sides are equal length all of these distances are the same.

Use the symmetry in a rhombus to place it in the coordinate plane so that the fewest number of variables is needed to label the coordinates of all the vertices.



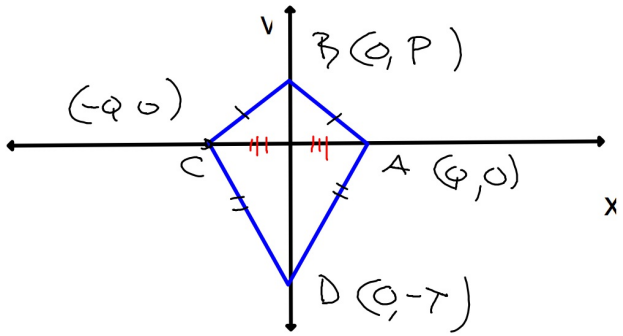
Each axis is a line of symmetry in a Rhombus and each coordinate is the same distance on either side of each axis with the horizontal distances different than the vertical distances since the diagonals are not congruent.

Use the symmetry in an isosceles trapezoid to place it in the coordinate plane so that the fewest number of variables is needed to label the coordinates of all the vertices.



In an Isosceles Trapezoid there is only one line of symmetry and that is the perpendicular bisector of the bases.

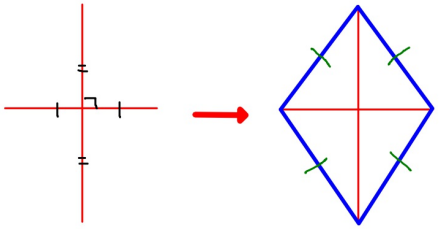
Use the symmetry in a kite to place it in the coordinate plane so that the fewest number of variables is needed to label the coordinates of all the vertices.



In a Kite there is only one line of symmetry and that is the diagonal that connects the non-congruent angles.

Try sketching a Rhombus so that it looks accurate.

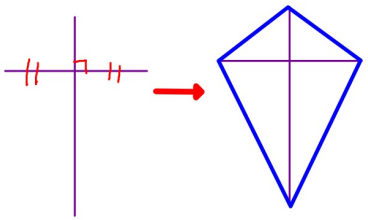
How could you use the properties of the diagonals to sketch an accurate Rhombus



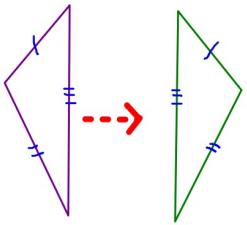
Draw the diagonals so that they are perpendicular and bisect each other but not of equal length. Then connect the endpoints of the diagonals.

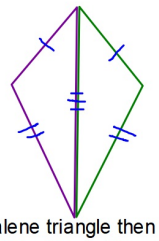
Try sketching a Kite so that it looks accurate.

How could you use the properties of the diagonals to sketch an accurate Kite



Draw the diagonals so that they are perpendicular and only one of them is bisected.
Then connect the endpoints of the diagonals.





Draw a scalene triangle then reflect it over one of the sides. Then put these two triangles together.

Hwk #8

Sec 6-6

Due tomorrow

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