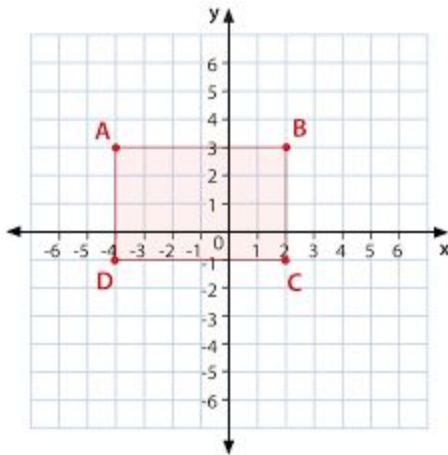


Coordinates and Rules for Coordinates

As you know a coordinate, or point, on a graph (coordinate plane) is written as (x, y) .

In the graph below, four coordinates (or points) are connected to create a rectangle.



If we wanted to take this rectangle and rotate, flip, slide it across the coordinate plane, or resize (make it larger or smaller), we would have to use a coordinate rule, which is referred to as a transformation.

For example, if we take the points A $(-4, 3)$, B $(2, 3)$, C $(2, -1)$, and D $(-4, -1)$ and apply the rule $(2x, 4y)$, this means we are taking all of the x's of each point and multiplying it by 2 and then taking all of the y's of each point and multiplying it by 4.

Thus, your new point for A would be $(-8, 12)$ because $2 \cdot -4 = -8$ and $4 \cdot 3 = 12$.

B becomes $(4, 12)$

C becomes $(4, -4)$

D becomes $(-8, -4)$

Now, we can also use other operations in our rules like addition and subtraction. For example, if we use the same original points of A, B, C, and D from the graph above and apply the rule $(x - 3, -y + 4)$. This means, we are going to take our x's and subtract 3. Then we take our y's and get the opposite of y (because it says $-y$) and then add 4.

So, A $(-4, 3)$ will now become $(-7, 1)$ because $-4 - 3 = -7$ and $-3 + 4 = -3 + 4 = 1$.

B $(2, 3)$ would become $(-1, -1)$.

C $(2, -1)$ would become $(-1, 5)$ because $2 - 3 = -1$ and $-(-1) + 4 = 1 + 4 = 5$. Remember $-(-1)$ means, the opposite of -1 .

D $(-4, -1)$ becomes $(-7, 5)$.

Now in the unit called *Stretching and Shrinking*, go to pages 29 and 31 and try completing the tables according to the given rules. Only apply the rules to the original coordinates unless otherwise stated in the book. What you don't finish is homework. Your homework will also be online. Answers to both will be posted on my website.