

MATH CLUB

ORDER



...you can get some *very* interesting results.



WORDS THAT USE THE SAME LETTERS BUT IN A DIFFERENT ORDER ARE CALLED ANAGRAMS. CAN YOU MAKE ANY FUN WORDS OR PHRASES FROM THE LETTERS IN YOUR NAME?



Order matters for lots of the things we do every day.

Like bagging groceries.

Heavy stuff goes in first, on the bottom.

Chips go in last.



Or using an electric toothbrush.

I learned that the hard way!

Other times, order doesn't matter.

Let's try some examples.

Connect **three** dots with **three** straight lines without lifting your pencil.

Does the order we use to connect the dots change the shape we make?

A •

B •

• C

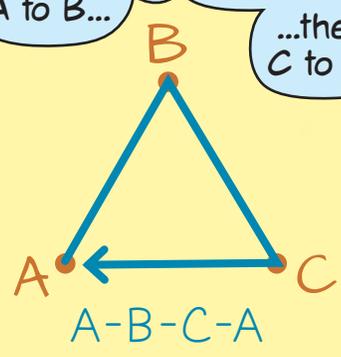
Does it?



We can connect A to B...

...then B to C...

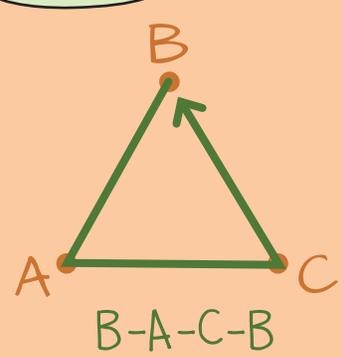
...then C to A.



A-B-C-A



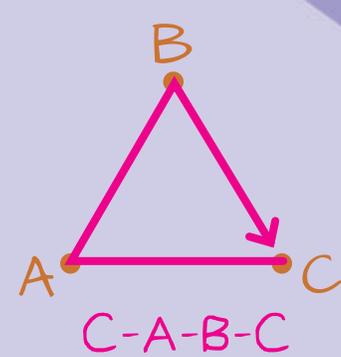
Or B to A to C to B...



B-A-C-B



Or we can start at C and go around this way.

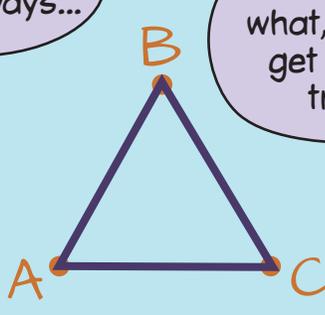


C-A-B-C



There are lots of ways...

...but no matter what, we always get the same triangle.




Good!

There are only three different lines we can draw.

However we draw them, we always get the same triangle.

Let's try the same thing with **four** dots and **four** lines.

Does the order affect the shape we make?

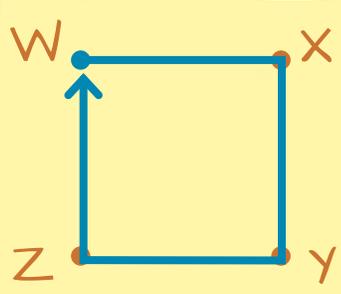
W. .X

Z. .y





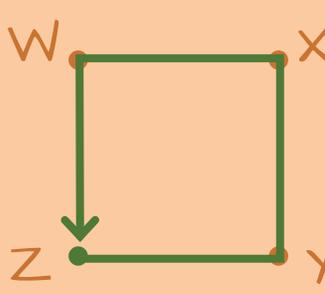
If we connect W-X-Y-Z and back to W, we get a square.



W-X-Y-Z-W



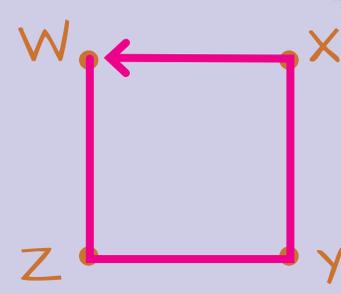
Same for connecting Z-Y-X-W and back to Z.



Z-Y-X-W-Z

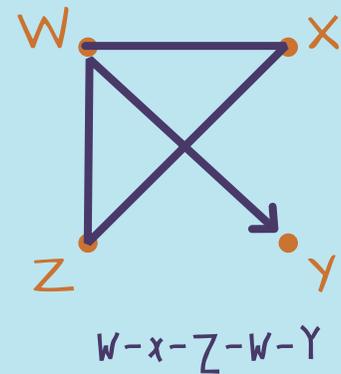
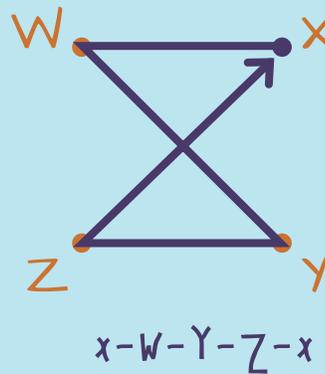
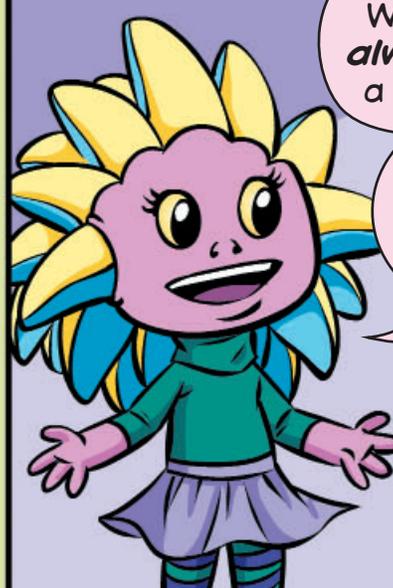


This way makes a square, too.



W-Z-Y-X-W

I tried two other ways. Neither of them made a square.

We don't *always* get a square.

So, order *does* matter.

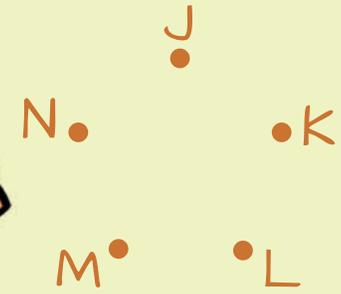
THERE ARE 4 DIFFERENT SHAPES YOU CAN MAKE IF YOU DON'T COUNT FLIPS AND TURNS: \square \times \times \times



That's right.

Order matters with 5 dots, too.

How could we connect these five points to make a star?



List the points you would connect in order.