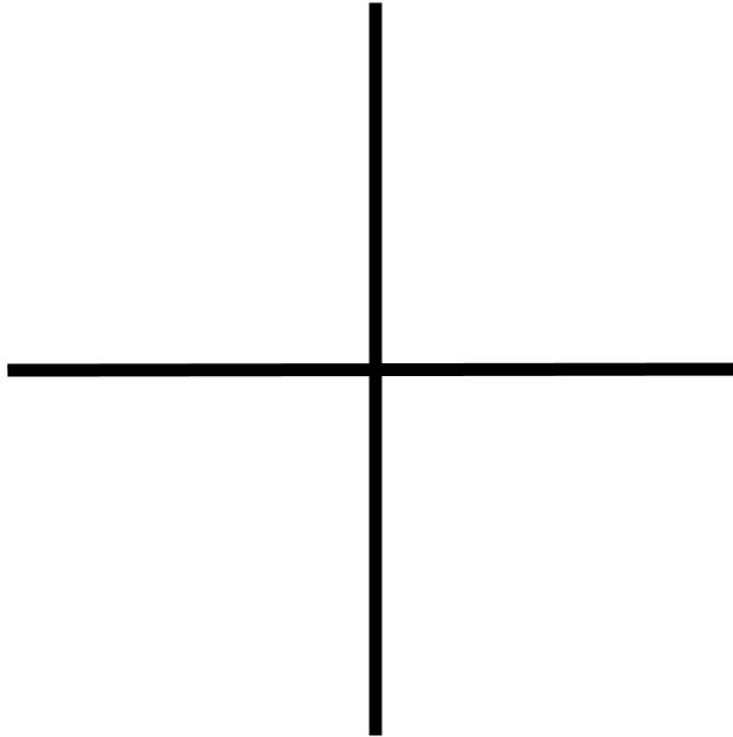


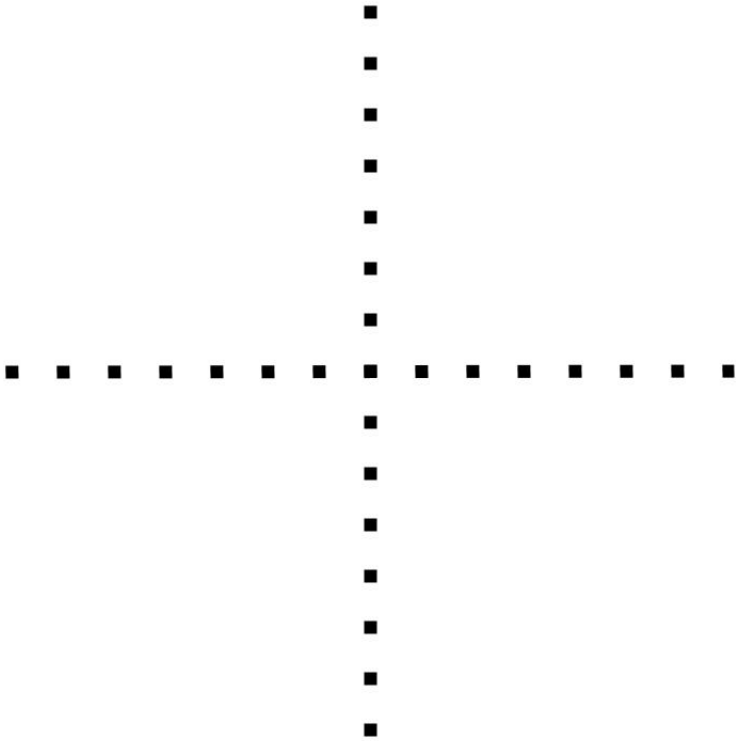
# Thinking Straight Exercises

These are great EXERCISES that do wonders while you are having fun! It may sound like these exercises are too simple to have anything to do with math or arithmetic – but trust me, they do. They can even help you form your character! When you make these curved forms out of straight lines, think of how you can take any curves life throws at you by walking straight into them! Do these exercises before you do math and *watch your thinking become clear and straight!*

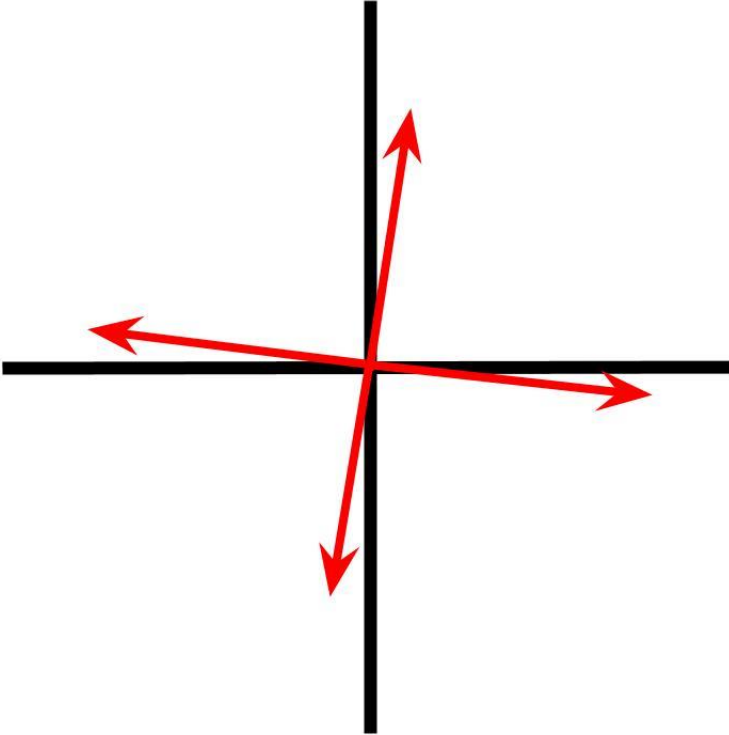
Exercise #1 Draw a straight line with your own hand that is about 4 inches long. If you went up or down, now do it again from side to side. It should look like a giant plus sign.



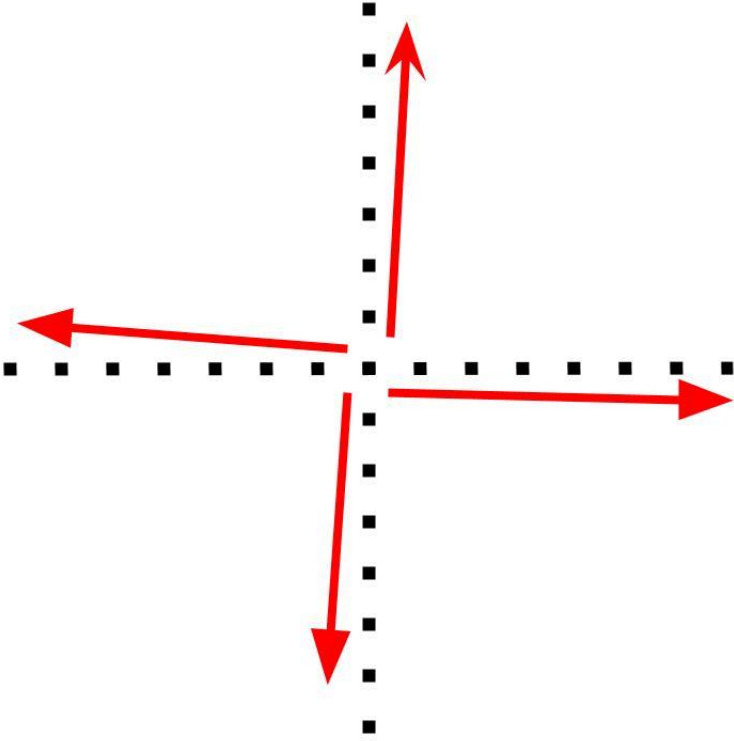
Exercise #2 Do the same as Ex. #1, but instead of drawing solid lines; make dots that are in line.



Exercise #3 Now, make the same plus sign; but start at the center dot and make four two inch lines that go out to the four directions.



Exercise #4 Now do Ex. #3 with dots.



### Exercise #5 ***Curved lines from straight lines!!!***

Here's the last exercise. This one is harder; but it's really fun.

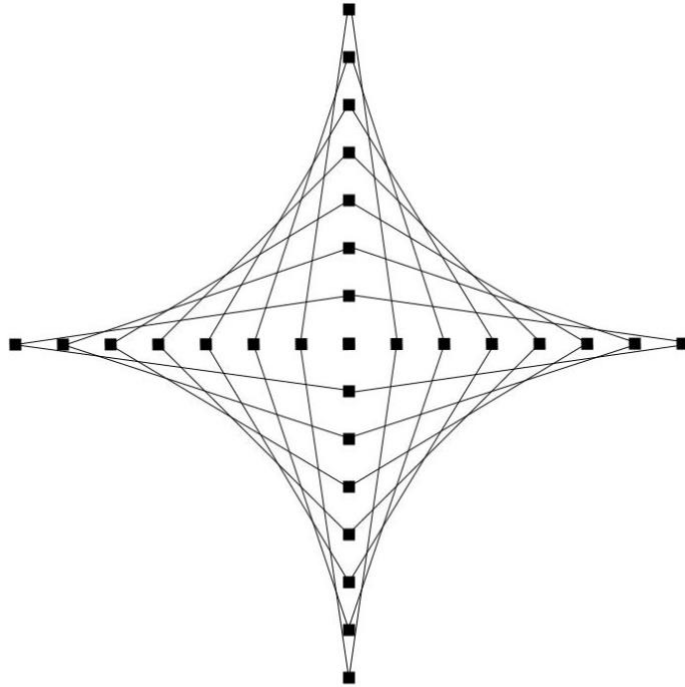
You're going to end up with a plus sign of dots of the same size; but this time, all four lines going out from the center will have exactly 8 dots. Here's how:

- Start by making the center dot.
- Now, go to the farthest end of your line and make a dot.
- Now, picture your line and make the dot that is half way.
- Now, make the two dots that are half way in between your two spaces. You should have 4 dots.

- Now, make the 4 dots that fill in the half way spaces. Your first line is done – it should have 8 dots.

- Now, make the other three dotted lines the same way – each should end up with 8 dots.

- Finally – *and here's the fun part* – connect the farthest out dot in each line to the closest in dot by making a solid line. Keep connecting the second farthest dot to the second closest dot, then the third, and so on. You should get this great design. It appears to have curves!



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If you want to do more of these exercises, try to figure out how the curves of this image were made, and do it yourself.

Or, to have even more fun, try to make these designs by sewing thread through cardboard, or by wrapping thread around nails in a board.

To make your own String Designs, you can use paper templates or patterns with dots already drawn. Sometimes I use them to make paper and pencil versions. Sometimes I punch holes through the dots into cardboard and sew thread through the holes for strings. And sometimes I use boards and place nails into the dots, then wrap string or thread around the nails.

Just think - with all of these beautiful designs, you were using straight lines! And all the while ... you were sharpening your mind to *think straight!*

