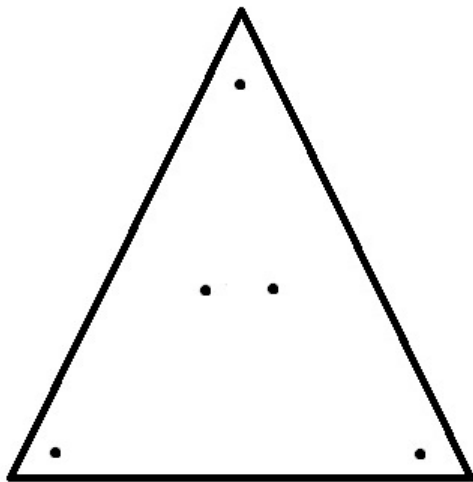
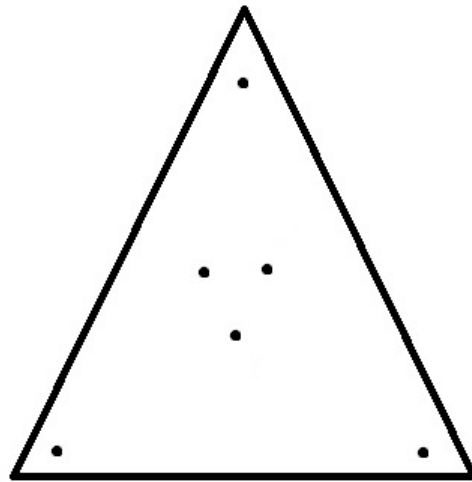


Criss-Cross To play Criss-Cross, take turns with a partner drawing lines between any two dots. New lines cannot cross any lines that are already on the board. The last player to make a legal move wins.



Board A



Board B

Question 1. Who won in Board A? Who won in Board B? Will this always be the case? Why or why not?

Question 2. Draw your own board with your partner. You should start with a triangle, and put one dot in each corner, and then you can any number of dots in the middle. Can you figure out which player will win? In general, can you figure out a rule for which player will win each board?

Question 3. Look back at Board A. After the game, how many regions did you make in Board A? (be sure to count the outer region as well!) How about Board B?

Question 4. What shape were all of the regions in (besides the outer one) in Board A? What about in Board B? Will this be true for all boards? Why or why not?

Question 5. If you add a dot to a board and continue the game, how many more regions will you make? How many regions there will be if you have 4 dots in the middle of the triangle? (Hint: Use your last answer and the number of regions you got for Board B.) What about 5, 6, or 7 dots in the middle?

Question 6. If you know a board has 10 regions, how many lines must it have? _____ lines

If you know the number of regions, how do you figure out the number of lines? (Hint: How many lines make each region? How many regions share one line?)

Question 7. Count dots, lines, and regions and write them here:

Board A: Dots: Lines: Regions:

Board B: Dots: Lines: Regions:

Your Board: Dots: Lines: Regions:

Now, add up dots - lines + regions for each board.

Board A: Dots - Lines + Regions =

Board B: Dots - Lines + Regions =

Your Board: Dots - Lines + Regions =

Do you notice any patterns? Can you explain any of these patterns?