

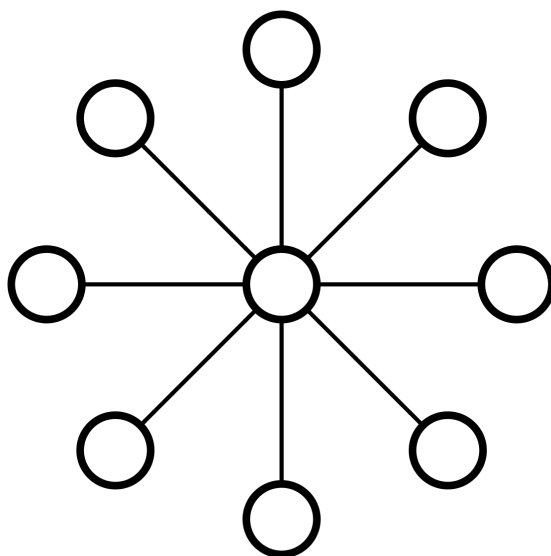


Problem of the Week

Problem C

The Snowflake Game

The Snowflake Game is played on a board that consists 9 circles. There is 1 circle in the centre of the board, with 4 line segments through it, and a circle at the end of each line segment.



Two players alternate turns placing discs numbered 1 to 9 in the circles on the board. Each number can only be used once in any game. The object of the game is to be the first player to place a disc so that the sum of the three numbers along a line segment through the centre circle is exactly 15.

Alex and Blake play the game. Alex goes first. Show that Alex has a *winning strategy* if she places a 6 in the centre circle on her first turn. That is, show that if Alex places a 6 in the centre circle on her first turn, then no matter which numbers Blake plays, Alex can always win the game.