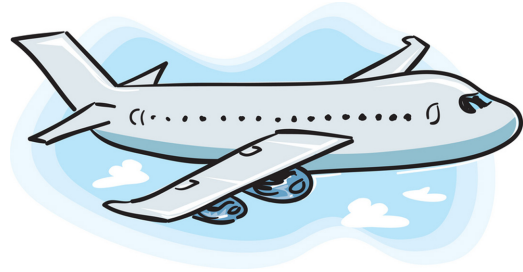# UW Math Circle
November 6, 2014
Homework

1. Melissa is planning a trip from Seattle to Atlanta. Her flight to Atlanta must stop in Minneapolis, Dallas, or Washington, DC. Her flight home to Seattle must stop in Denver, Houston, Tuscon, or Nashville. How many round trip flight options does Melissa have?

2. How many ways are there to put a white bishop and a black bishop on a chessboard so that they do not attack each other?

3. 7 rooks are placed on a 7×7 chessboard such that no rook attacks another. Simultaneously, each rook makes a knight move. Could is still be that no rook attacks another?

4. A square field is divided into a 10×10 grid of small square plots. Weeds have infested 9 of the plots. The weeds will spread to a plot if two of the plots adjacent to it (sharing a side) are already infested. Is it possible that the weeds will eventually take over the whole field?