Cryptography Activity

Overview: Make a web-like drawing that you can make public so that anyone can send you information secretly.

Instructions:

Person A: Follow the steps below to make a hidden perfect network that will allow others to send you a message.

Step 1. Choose 4 or 5 of the points on your sheet to be your hubs.

Step 2. Draw a straight line connecting each of the outlier points to one and only one hub. Make sure that:

- Each outlier connects to a hub.
- All of the hubs are connected to at least one outlier.
- No outliers connect to more than one hub.
- No hubs connect directly to another hub.

Step 3. Randomly add some connections between outliers. (But do NOT make any new connections to hubs.) Add enough so that you can't easily tell where the hubs are.

Step 4. Lay the transmission sheet over your sheet and make a copy of your connections. Only draw in the straight line connections between the points (do NOT indicate where the secret hubs are). Do this for both copies of the transmission sheets.

Step 5. Send your transmission sheets to Person B through public channels.

Step 6. Wait until you get the transmission sheet back.

Step 7. Add up the numbers in the boxes next to your secret hubs. This is the answer!

Person B: Follow the steps below to send the answer to your question back to Person A.

Step 1. Write down numbers in the boxes next to the dots. The sum of all your boxes should be the number you want to send. Tip: Don't use numbers that are too big and negative numbers are okay to use. So maybe try to use only whole numbers between -10 and 10.