Table Tennis

You need: square grid paper

1. When a table tennis club started at school, only 3 students were interested: Alison, Barry, and Casey. This table shows how they worked out the draw for a singles tournament where each player played every other player once.

versus	Alison	Barry	Casey
Alison		A v B	
Barry	B v A		
Casey	C v A		

a. i.   Copy the draw table and fill in the empty spaces.
    ii. Explain why the draw table has 3 shaded spaces.
    iii. Alison says that the draw table shows there are just 3 games in the tournament. Is Alison correct? Explain your reasoning.

b. Casey convinces his friend Diane to join the club.
    i.   Make a new draw table for the 4 players.
    ii. How many games are there in the tournament now?

2. Casey claims that when 4 new players (Elva, Fred, Gary, and Huia) join, thus doubling the size of the club, there will be 12 games altogether to play.

a. Make a draw table for the 8 players and check whether Casey is correct. Explain Casey's reasoning.

b. See if you can find a way to predict how many games will be played when there are 16 players. Check your prediction by making a draw table.

c. Suppose the club has 100 players. How many games will be played? Show your working.