UW Math Circle
Homework

1. Who wins this game of Hackenbush if Violet goes first? Who wins if Dash goes first?

2. Kristoff and Sven decided their old game was too complicated and decided to try something more simple. Kristoff arranges 10 coins in a circle. Sven and Kristoff then take turns removing one, two or three adjacent coins. If Sven goes first, can you find a strategy so that one player always wins?

3. Anna and Elsa decide they want to create their own game too. Starting at 0, they each take turns adding a number between 1 and 10 to the sum. The player who says 100 is the winner. Anna goes first and always wins. What strategy does she use?