Carter Brehm - Reflections

The expected value for 30 games was that the player would lose 4.8 tootsie rolls. Since we had 63 games, the player should have lost 10.08 tootsie rolls. However, the expected value is never perfect, and the player instead lost 13 tootsie rolls. The theoretical probability of winning was 22/100. The theoretical probability of losing was 6/10. The probability of breaking even was 18/100. These are very close to their experimental counterparts. The actual probability of winning was about 20.6%. The probability of losing was about 61.9%. The probability of neither, breaking even, was about 17.4%. These were really close to our theoretical probabilities, and is a good sign that we had little outside influence such as skill to change the outcome. The game worked exactly as we intended, with the probabilities matching what we had calculated. The only adjustment is perhaps to add more non-gold balls, as it felt like it came up too often. Also, we might come up with a more fun way to actually play the game, because most of the players would just walk away and wouldn't come back for a while because the game felt too fast and the players felt like they were cheated out of a win. Overall, the house came out on top and the players still felt like they had a chance. A casino would buy our game based on probability alone, given that it's almost even between house and player, but the scales have been just barely tipped towards the house.