

Lesson 6: Theoretical Probability

1. Anya rolls an octahedron labelled A, A, A, B, C, C, C, C.
What is the theoretical probability that the octahedron will land on each letter?
2. Eva's penny jar contains 25 pennies from 2004, 32 pennies from 2006, 17 pennies from 2007, and 26 pennies from 2008. She picks a penny from the jar at random.
 - a) List the possible outcomes.
 - b) What is the theoretical probability of each outcome?
 - i) Eva picks a penny from 2007.
 - ii) Eva picks a penny from an even-numbered year.
 - iii) Eva picks a penny from a leap year.
3. Yannick is playing a game at a fun fair. Twenty-five small metal boats are floating in a large tub. On the bottom, 20 boats are marked "Too bad," 4 boats are marked "Take another turn," and 1 boat is marked "You win!" Yannick uses a magnet on a stick to pull a boat from the tub. What is the theoretical probability of each outcome?
 - a) Yannick loses on his first turn.
 - b) Yannick gets a second turn.
 - c) Yannick wins on his first turn.