



AUSTRALIAN MATHS TRUST

Maths Challenge Intermediate: Years 9–10 Practice Problem

I1: Dice Duels

Corey and David are playing a game with counters and dice. Corey has some counters, each labelled 1 on one side and 2 on the other. He flips the counters and scores the total of all the numbers showing. David has one die and scores the number showing after he rolls.

The winner of the game is the player with the higher score. The game is a draw if both scores are the same. All counters and dice are fair, that is, all faces are equally likely to come up.

I1: Questions

- a. Corey flips two counters while David rolls one normal 6-faced die.
 - i. Calculate the probability that both score 3 in this game.
 - ii Explain why Corey is more likely to lose.
- b. Who is more likely to win if Corey flips three counters while David rolls one normal 6-faced die?
- c. David rolls an octahedral die with faces labelled 1 to 8.

Determine the number of counters Corey must flip to make this a fair game. That is, a game in which Corey and David have the same chance of winning.