

Many postseason matchups in North American professional sports are best-of-7 series, with the first team to four wins winning the series. Consider a series between two evenly-matched teams, and assume that the outcome of any game is independent of the outcome of any other game.

- (a) What is the probability the series ends after 4 games?
- (b) What is the probability the series ends after 5 games?
- (c) Show that the probability that the series ends after 6 games is equal to the probability that it goes 7 games. *Hint:* Any 6 or 7 game series must have had one team with a 3-2 lead after 5 games; what determines if the series goes 6 or 7 games from that point?
- (d) Does this seem like a reasonable model for how a series operates? Why or why not?