

Express Riddler

2 July 2021

Riddle:

There are 200 episodes in a season of *Riddler Jeopardy!*. The first episode of the season features three brand-new contestants. Each subsequent episode includes a returning champion (the winner of the previous episode) as well as two new challengers.

Throughout the season, it so happens that the returning champions are particularly strong, with each one winning five consecutive episodes before being dethroned on the sixth.

If you pick a contestant at random from the season, what is the probability that they are a *Riddler Jeopardy!* champion (meaning they won at least one episode)?

Solution:

On the first episode of the season, there are three (new) contestants. On each of the remaining 199 episodes, there are two new contestants. This gives a total of 401 contestants. There is one player who will win games 1–5, one player who wins games 6–10, etc. At five games each, this means there are 40 champions. So the total probability of picking a champion at random is $\frac{40}{401} \approx 0.0998$.