

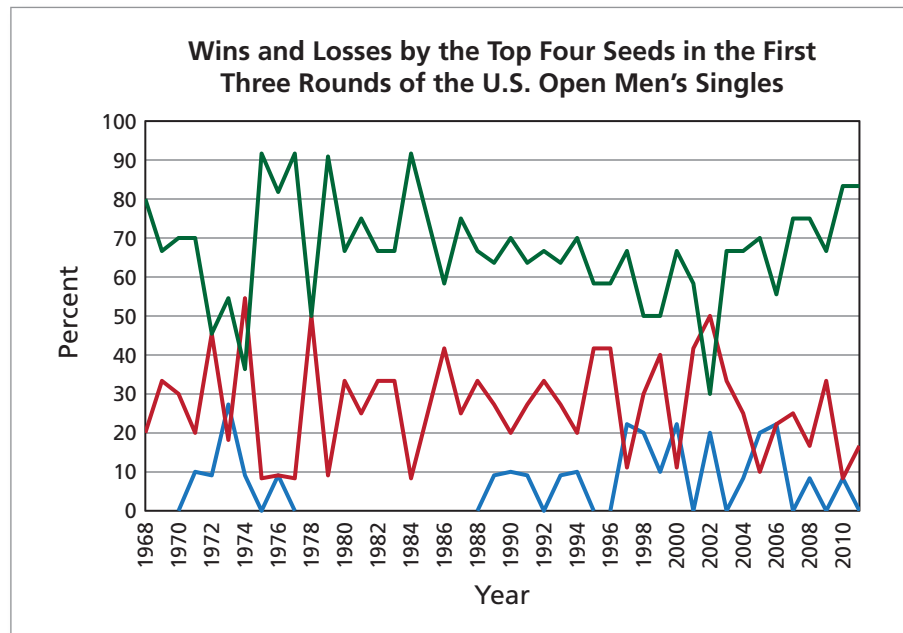
### Other Professional Sports

#### EXAMPLE 5 Analyzing U.S. Open Wins and Losses

The graph shows the wins and losses by the “top four seeds” (players with the best rankings prior to the tournament) in the first three rounds of the U.S. Open Tennis Men’s Singles Tournament. The **green line** shows straight set wins, the **red line** shows wins when they dropped one or two sets, and the **blue line** shows losses.

In men’s tennis, a player must win 3 out of 5 sets. A “straight set win” means that the player won the first 3 sets. (In women’s tennis, a player must win 2 out of 3 sets. A “straight set win” means that the player won the first 2 sets.)

In men’s tennis, a player can drop 1 or 2 sets and still win the match. This can happen in 9 different orders: L-W-W-W, W-L-W-W, W-W-L-W, L-L-W-W-W, L-W-L-W-W, L-W-W-L-W, W-L-L-W-W, W-L-W-L-W, and W-W-L-L-W. (In women’s tennis, a player can drop 1 set and still win the match. This can happen in only 2 orders: L-W-W and W-L-W.)



What observations can you make from this graph?

#### SOLUTION

The most obvious observation is that the “seeding system” really works! The players who entered the U.S. Open as 1 of the top 4 ranked players were matched against players with lower rankings, and the top 4 seeds appeared to win easily. Another observation is that the green line always exceeded the red line, except in 1972, 1974, and 2002.

#### ✓ Checkpoint

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- Do the 3 lines in the graph always total 100%? Explain.
- In the years in which there were no losses, are the green and red lines mirror images of each other? Explain.