

Lottery facts and comparisons

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- The current rules for the interstate lottery offered in Wisconsin are that a player must predict the outcome of 5 balls drawn from a set of 49 balls and 1 ball drawn from a set of 42 balls. The number of combinations possible are

$$\binom{49}{5} \times 42 = \frac{49 \times 48 \times 47 \times 46 \times 45}{5 \times 4 \times 3 \times 2 \times 1} \times 42 = 1,906,884 \times 42 = 80,089,128.$$

- For a Wednesday drawing there are no more than 83 hours in which to purchase tickets. To cover all the combinations would require that
 - More than 267 combinations would have to be purchased **per second**;
 - Each of these combinations would have to be different.
- For a Saturday drawing there are no more than 62 hours in which to purchase tickets. To cover all the combinations would require that
 - More than 358 combinations would have to be purchased **per second**;
 - Each of these combinations would have to be different.
- Some recent statistics:
 - For the drawing on 7/15/98 approximately 20.6 million combinations were sold (including repetitions). If these all had been different it would have covered about 25.7 percent of the total combinations. In fact, approximately 23 percent of the combinations were chosen.
 - For the 7/15/98 drawing tickets sold at an average rate of just under 69 tickets **per second**.
 - The projection for the drawing on 7/18/98 is that approximately 32 percent of the combinations will have been chosen.
- The chances of predicting the winning combination are similar to being dealt a royal flush from a fifty two card poker deck and then tossing a fair coin seven times and getting all heads, an event which has one chance in 83,166,720.
- You are more likely to toss 26 fair coins in the air and have them all land heads (1 chance in 67,108,864) than you are to predict the winning combination.
- It is more likely that 10 consecutive rolls of a pair of fair dice will all yield doubles (1 chance in 60,466,176) than you are to predict the winning combination.
- If I divide a 3 square mile area into 1 foot square patches and hide 100 million dollars there, you are slightly more likely to predict the winning lottery combination than to guess where the money is (1 chance in 83,635,200).