

# Mega Millions, Powerball prizes come down to math, long odds

October 22 2018, by Scott Mcfetridge

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A shop employee in Atlanta holds Mega Millions lottery tickets, Monday, Oct. 22, 2018. No one won the \$1 billion jackpot in Saturday night's drawing, which means the top prize for Tuesday night's Mega Millions drawing would be the largest lottery jackpot in U.S. history. (AP Photo/Mike Stewart)

For all the anticipation about whether someone will finally snag the gigantic Mega Millions and Powerball jackpots, the games come down to two things: simple math—and very long odds.

But there are some quirks and surprises about the math equations that likely will soon vault someone into stratospheric wealth after the jackpots grew for months without a winner.

## WHAT ARE THE JACKPOTS?

The biggest quirk starts with this fact: The advertised \$1.6 billion Mega Millions prize—the world's largest ever lottery jackpot—and \$620 million Powerball prize aren't quite real. That is, those are the amount you'd be paid if you chose an annuity, doled out over 29 years. Nearly every winner opts for cash, which is the amount of money the lottery folks actually have in the bank ready to pay out to the company that would fund the annuity.

The cash option is still massive, at \$904 million for Mega Millions and \$354.3 million for Powerball. But those numbers aren't splayed across billboards and shown in countless mini marts across America.

## POTENTIAL COMBINATIONS

The dismal odds of winning the Mega Millions jackpot—1 in 302.5 million—mean there are 302.5 million potential number combinations, or a little less than one combination for each of the 328 million people living in the U.S. For last Friday's drawing, about 59 percent of possible combinations were taken. But by Tuesday night's drawing, officials estimate that 75 percent will be sold.



Jean Pierre fills out several Mega Millions lottery tickets for purchase at a convenience store Monday, Oct. 22, 2018, in Orlando, Fla. No one won the \$1 billion jackpot in Saturday night's drawing, which means the top prize for Tuesday night's Mega Millions drawing would be the largest lottery jackpot in U.S. history. (AP Photo/John Raoux)

That would mean a 25 percent chance of no winner. If that happens, it's likely even more combinations would be covered before the next drawing three days later. Officials don't have an estimate on how many tickets would be sold for that potential drawing, and they haven't said how large the estimated prize would be. Could it reach \$2 billion?

The odds of winning Powerball are 1 in 292.2 million.

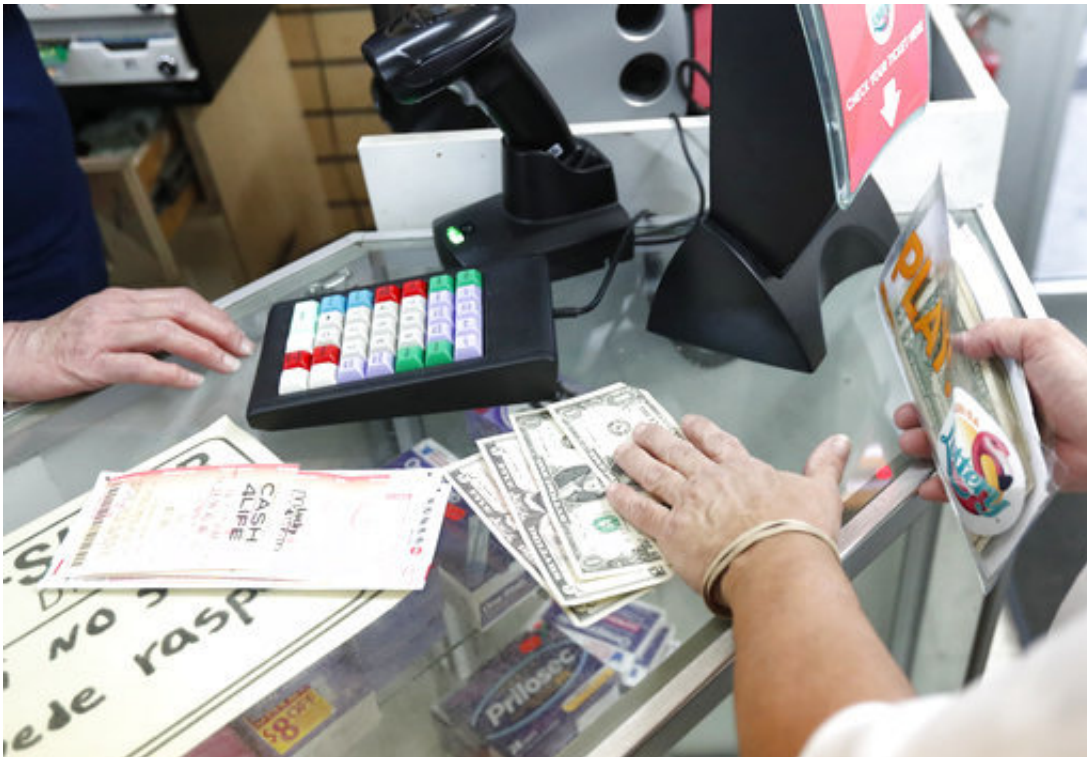
AS THE GRAND PRIZE INCREASES, SO DO WINNER NUMBERS

The odds of winning don't change as jackpots get larger, but the chance that more than one winner will share the prize do. When so many people rush to play as a jackpot soars, the chances increase that two or three tickets—of the millions of tickets sold—will match. Of the five largest jackpots awarded in the U.S., three went to multiple winners. The largest single prize went to a 2017 player from Massachusetts who celebrated a \$758.7 million Powerball payday.

## TWO JACKPOTS, ONE WINNER?

If the odds of winning either Mega Millions or Powerball don't seem gigantic enough, how about winning them both? Spend \$4 on a ticket for each game and it could happen. But the odds aren't especially favorable, at about 1 in 88 quadrillion (that's 88,000,000,000,000,000).

## LUCKY NUMBERS



A customer purchases lottery tickets, Monday, Oct. 22, 2018, at La Preferida Superdiscount store in Hialeah, Fla. Lottery players will have a chance at winning an estimated \$1.6 billion jackpot in Tuesday night's Mega Millions drawing and an estimated \$620 million in Wednesday night's Powerball jackpot. (AP Photo/Wilfredo Lee)

For Mega Millions, players choose six numbers: five from a range of white balls, numbered 1 to 70, and one number for the Mega Ball, with a range of 1 to 25. What numbers have come up most? Since 2010, that honor goes to the number 2, with 92 hits, followed by the numbers 20, 11, 31 and 17. The most hit Mega Ball number is 9.

Lottery officials are quick to point out that the number selection is random, so there's no reason that what hit in the past will be selected again. The game also has changed over the years, so some numbers included weren't always in the mix.

## LUCKY STATES

Not surprisingly, the most Mega Million jackpot winners in the past five years have come from states with the largest populations. New York, with the nation's fourth-largest population, leads with seven winners. The No. 1 population state of California is second in Mega Millions winners with six, while Illinois is third with four winners.

Still, there are some quirks, as Georgia has the eight-largest population and three winners and Washington state has two winners but only the 13th largest population. Texas has the nation's second-largest population, yet players have only bought winning Mega Millions tickets in the state twice in the past five years. And let's hear it for Rhode Island, the smallest population state to have won a Mega Millions jackpot in the

past five years.

## AMERICA IS NO. 1

For those with an international bent, the current Mega Millions jackpot has surpassed all lottery jackpot records—so it's not only the largest lottery prize in U.S. history, it's now the world's largest.

The annual El Gordo national lottery in Spain advertises a larger total prize pool, but the money is divvied up into many prizes, according to Seth Elkin, a spokesman for the Maryland lottery, which currently takes questions about the Mega Millions drawing.

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Citation: Mega Millions, Powerball prizes come down to math, long odds (2018, October 22)  
retrieved 21 May 2024 from <https://phys.org/news/2018-10-huge-lottery-prizes-due-simple.html>

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