

Real World Graduation: Question 15

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Question 15

The most effective plan to adopt for earning a lot of money legally in a short period is:

- a) Lottery tickets
- b) Games of chance (legal gambling) at a casino
- c) TV game shows
- d) Church bingo
- e) Timing of investments in the stock market

Answer to Question 15

This is a trick question. None of these choices are a reliable way to obtain money in a short period.

Answer a) is wrong because the probability of winning a lottery with a large prize is very small. For example, the probability of winning the big prize in a state-run lottery depends on the structure of the game, meaning how many numbers the player gets to choose from an array of numbers. Some games are structured as 6/49, in which the player chooses six numbers between 1 and 49. The probability is: $(6 \times 5 \times 4 \times 3 \times 2 \times 1)$ divided by $(49 \times 48 \times 47 \times 46 \times 45 \times 44) = 720 / 1.006834752E10 = 1$ in 13,983,816 = $7.1511E-08$, which is the same as 0.00000071511. Likewise, for a simpler game of 5/22, the probability would be $(5 \times 4 \times 3 \times 2 \times 1) / (22 \times 21 \times 20 \times 19 \times 18) = 120 / 3160080 = 1$ in 26334 = 0.000037974. But keep in mind that players are induced only by large prizes, which can be issued only if a large number of people play, and so the game must be made more difficult. That is, in order for large prize to exist, the probability of winning has to be kept very small such that more players buy tickets, and the prizes continue to increase week after week because it takes several weeks for the probabilities to come into play such that someone finally gets the winning numbers. That is why simple games (such as picking numbers from 1 to 100) have small prizes. At the other extreme, the Powerball lottery can work up to very large prizes because the probability of winning the big prize is somewhere around 1 in 175,000,000 = $5.7142E-09$.

Answer b) is wrong because the "games of chance" at casinos are engineered to provide the casino, playing as the "house", a slight edge. In games of pure chance such as roulette or dice, the player must guess correctly many times in a row in order to win a significant amount over what they bet. In Blackjack, the probability of winning is higher for a skilled player than an unskilled one, but the edge enjoyed by the house will cause all players to lose in the long run. In the short run as considered here, a player can win but not by planning to go in and win; it is purely a case of short-run good fortune, guaranteed (by the house advantage) to disappear as quickly as it came as more hands are played.

Answer c) is wrong because the probability of winning a TV game show depends on the probability of being chosen to appear on the show. If it is a game of skill (general knowledge as in "Jeopardy", "Who Wants to Be a Millionaire", or experience at shopping as in "The Price is Right"), a player may do well. But the overall probability of winning, when contemplating how to earn a large amount of money in a short time, is very small because the probability of getting onto the show is very small.

Answer d) is wrong because the probability of winning at church bingo (which will not involve a large amount of money anyway) depends on the number of "cards" being played. Suppose that the church operates the game truly as a charitable event, that is, it does not play as the "house"; all the prizes are awarded to players in the audience. If so, the probability depends on the number of customers that play. If you are the only player, only you can win, and eventually (even if it takes nearly all the numbers being called), you will be the winner. If 100 bingo cards are being played, each card has an equal chance of being the first to meet the bingo requirements, and the probability that you will win is 1 in 100, that is, 0.01. Likewise, if you are one of 10000 cards that are being played, your probability of winning is $1/10000 = 0.0001$.

Answer e) is wrong because...wait a minute, we pause here for a commercial interruption....

"Wouldn't you like to live like the rich and famous? Wouldn't you like to have a private jet, a summer home on the Riviera and a winter home in Aspen? Wouldn't you like to have the biggest yacht in the harbor? Wouldn't you like to be invited to the A-list parties with all the other successful people? Well now you can! All you have to do is become skilled at day-trading in the stock market,

and you too can enjoy untold wealth. Build your wife that dream house she's always wanted! Buy a fleet of Ferrari's, one for each day of the month! Become known as the one guy from your hometown who made it big! Send your children to the finest universities! No more trudging to work every day - day trading can be done in the comfort of your own home! Day trading stocks, bonds, and commodities futures is simple once you learn the secret tricks shown in the upcoming "Don't Wait - Get Rich Today Working the Market" seminar. Tickets are only \$699 per person. First come, first served! Hurry, seats are going fast and we can offer this low, low price only for a short time! Act now, and don't miss out on this fantastic opportunity! Live the life of your dreams! Reserve today!"

We've all seen those ads. But I'll tell you their "secret trick" for free. The "secret trick" is: all you have to do is be able to guess what the market will do tomorrow, or in the next hour, or in fifteen minutes from now. And all you have to do is guess correctly about 80% of the time. See how simple? Anyone can do that. Except --- no one can do that. The market depends on the choices of millions of people spending billions of dollars every day, and you, the individual, cannot hope to do better than the aggregate of investors, which is "the market". The same is true of any scheme that depends on "timing the market". The market cannot be timed. Can you benefit from occasional lucky guesses? Can you "go along with what everybody else is doing" and make money? Sure, but you will not get rich quick either way.

As a wise person once said, "The way to obtain a small fortune in day trading is to start off with a large fortune."

The correct answer to this question is: there is no way to develop a "plan" to get rich legally in a short time. All of the possible answers posed in the original question have either: a) a very small chance of success; b) a very small monetary prize; or c) can occur, but only in an unplanned way. This last category does happen, but purely by accident and coincidence.