Winning the Lottery

Your Task:

You are going to determine the probabilities of winning lottery games and report your calculations. The Texas Lottery has a listing of the odds of winning each game, and you are going to prove their math. After you have done your calculations you are going to create a **Math Journal** advising an adult friend or family member about playing the lottery games based on your mathematical knowledge and calculations.

Math Journal Requirements:

- Typed project notes on 8 ½ x 11 paper(s). How you design the journal is up to you (orientation, folding, margins, etc…). *You may "jazz it up" with construction paper mounting and clip-art if so desired. This will go towards the final grade.*
- A short description of how to play the game and all the ways you can win.
- Calculations of the odds of 3 ways of winning, one per person
  For example: Power Ball has winners for 5 out of 5 with Power Ball to 0 out of 5 with Power Ball or simply 5 out of 5, no Power Ball number. Each group member can be assigned to the calculations of each (make sure to credit yourself with which one you did in the journal)
- Use permutation & combination notation where appropriate. You may use P(n,r) or n_P_r
- Response to **reflection questions**. Complete these together.
  - Question 1: What do you think about the wisdom of people's decisions to sell their home and put all the money on the lottery?
  - Question 2: Could you actually spend enough to guarantee a win in a lottery?
  - Question 3: What if you are a very wealthy person looking to make a profit, would you advise trying to win the lottery as a way to actually make money?
  - Your recommendation to play or not to play and why.

***For Bonus Points**: Calculate the probability of other unrelated events to put the probability of winning the lottery into perspective.*

Power Ball

Group 1: Trenton Barnett, Zachary Mullins, Zachary Stockton
Group 2: D'ante Lee, Anthony Marucci, Christopher Collmer

Mega Millions

Group 1: Cody Bello, Edward Diaz, Jared Jallans
Group 2: Benjamin Leger, Aaron McAughan, Alex Nevle

Lotto Texas

Group 1: Austin Capo, Nasim Dimassi, Will Johnston
Group 2: Peyton Levy, Justin McAuliffe, Nicholas Pike

Texas Two Step

Group 1: Elijah Cherry, Brodie Elkins, Jacob Karr
Group 2: Brandon Malekie, Nicholas Mullen, Collier Pruner (CJ)

Pick 3 with Sum-It-Up*

Nicholas Rathgeb and Amir Henry

Computer Day: Friday, March 30
Project Due: Wednesday, April 4

Rubric

Math Journal	Beginning (1)	Developing (2)	Accomplished (3)	Exemplary (4)	Points Awarded
Computation of odds of 3 ways to win, (individual grade)	Makes major errors.	Makes some errors and it is unclear if they are aware of proper problem-solving procedures.	Makes minor computational errors.	Makes no computational errors.	_____/4 _____/4 _____/4
Reflection Questions	Missing answers to several of the reflective questions.	Answers most of the reflective questions. Answers questions with little reflection.	Answers all questions completely.	Thoroughly answers all reflective questions with complete, thought-provoking answers.	Q1: _____/2 Q2: _____/2 Q3: _____/2 Overall:_____/4
Mechanics	Text contains many spelling/ grammar errors. Sentences seem disconnected, and there is carelessness throughout.	Text contains some spelling/grammar errors. Little logical structure or flow to sentences. Evidence of carelessness in writing.	Grammar and spelling are nearly flawless. Logical sequence apparent. Some wording is careless. Inconsistency in style.	Grammar and spelling are flawless. No errors!	_____/4
Quality, Neatness and Organization	Illegible or messy	Legibly written and presented	Clear, uncluttered, and attractive	Evidence of pride and care in work	_____/4
				Subtotal	_____/30
				Bonus Points?	
				Total	_____/30