

Casino Day

READ THIS ENTIRE SHEET BEFORE STARTING ANY OF THE WORK

Congratulations! You and your partners (2-3 in total) have just landed a big job with Casino-Central. Opening day is **March ____**, and your group has been hired to design an innovative new game. You can use dice, coins, playing cards, spinners, etc. You may have materials in some of your board games at home that could be used in creating this game. The currency used at this casino is pennies! When you are designing your game, remember to keep the costs and winnings in pennies (cents). Each player in the casino will be given a limit of 25 pennies with which to spend. Therefore, the cost of playing and/or the winnings in your game should be kept relatively low. For example, you might design a game that costs 2 cents to play and that gives out winnings of anywhere from 0 to 4 cents.

Your supervisor, Mr. Estabrooks, requires a preliminary report at the end of the period **TODAY**. This means that your group has about 70 minutes to complete the following tasks. Item numbers 2 – 7 are to be written up neatly in a report form. Make sure that you make at least **2** copies (one for you group and one for your supervisor).

1. Discuss possible “games” that you could play at your “table” in the casino. Try to be creative. For example, your game could consist of a combination of trials (ie: flip a coin and roll a die). Avoid being too elaborate; just make it FUN.
2. Write out a description of your game, step by step, so that your supervisor understands exactly how your game will work. (Sell him the idea of letting you set up a table in the casino).
3. Make a probability distribution table which shows all of the possible values of the random variable along with the associated probabilities.
4. Calculate the expected value for you game.
5. Decide what you will charge to play the game. You can decide if you want to make the game favorable to the house (that’s you), to the player, or to both (ie: break even). Indicate in your report which of these you have chosen.
6. Design a poster that will go on the wall behind your table on opening day. Make a rough sketch of this poster in your report. This poster must include the name of your game, the cost to play, and the basic rules so that people considering your game can decide by looking at the poster whether to play or not.
7. Make a list of the members of your group and the responsibilities assigned to each (ie: who is bringing in the materials for the game, who is making the sign, who is writing up the good copy of this report today, etc.)

- Remember:**
- a) The report is due at the end of this period
 - b) Opening day is March _____. Be prepared with all of your materials.
 - c) The idea is apply what you have learned in chapter 7 and have fun.

Casino Day Marking Scheme

Poster/Set Up

1. Clarity of Instructions
2. Appeal
3. Consistency with plan
4. Neatness/Errors/Presentation
5. Preparedness

Calculations

1. Rough tally included - # of games played and winnings/losses of house
2. What did you lose/make?
3. Calculate: $\frac{\text{total winnings}}{\text{total games played}}$ How does this compare to your $E(x)$?
4. Examine/explain your results.