

Elementary Statistics	Name: _____
Extra Credit 2	Class: _____
Due Date: _____	Score: _____

Your work must be very similar to my notes, lectures, or videos.

Be Neat, Organized, and No Work \Leftrightarrow No Points

1. A basketball coach has 3 girls and 7 boys in his basketball team, and he needs to select 5 players to start the game. Assume all players can play all positions.

(a) (2 points) How many ways can he select 5 players?

(a) _____

(b) (2 points) How many ways can he select 3 boys and 2 girls?

(b) _____

(c) (3 points) What is the probability that he selects 3 boys and 2 girls?

(c) _____

(d) (3 points) What is the probability that he selects at least 1 girl? Final answer in reduced fraction.

(d) _____

(e) (3 points) What is the probability that he selects at least 1 boy? Final answer in reduced fraction.

(e) _____

2. Consider a city sponsored lottery that you select 3 different numbers in any order ranging from 1 to 25 and the fundraisers draw 3 numbers that are considered as winning numbers.

(a) (5 points) Let x be the number of winning numbers that you have, and $P(x)$ be the probability of x winning numbers and $n - x$ losing numbers.

W Total winning numbers, L Total losing numbers, n total numbers drawn, and N Total numbers drawn from.

x	$P(x)$	$P(x)$
	Using $\frac{W C_x \cdot L C_{n-x}}{N C_n}$ notation	Reduced Fraction Only
3		
2		
1		
0		

(b) (2 points) Use your calculator to find the mean μ .

(b) _____

(c) (3 points) Use your calculator to find the exact value for the variance σ^2 in reduced fraction.

(c) _____

3. At a local fundraising, you can purchase a ticket for \$5, and select 3 numbers in any order from 1 to 20. The fundraisers also select 3 numbers.

If you have all 3 winning numbers, then you win \$75.

If you have exactly 2 winning numbers, then you win \$20.

And finally, if you have exactly 1 winning number, then you win \$5, otherwise nothing.

- (a) (5 points) Complete the table below.

The Number of Winning Numbers	The Amount of Net Gain	The Probability of Net Gain In Reduced Fraction
3		
2		
1		
0		

- (b) (2 points) Use your calculator to find the expected value per ticket.

(b) _____

- (c) (2 points) Are the fundraisers making or losing money per ticket sold? Explain.

(c) _____

4. A CNN study reveals that 80% of women are in favor of stricter gun control. If we randomly select 400 women,

(a) (2 points) Find the probability that the number of women in favor of stricter gun control is exactly 310.

(a) _____

(b) (3 points) Find the probability that the number of women in favor of stricter gun control is fewer than 310.

(b) _____

(c) (3 points) Find the probability that the number of women in favor of stricter gun control exceeds 310.

(c) _____

(d) (3 points) Find the probability that the number of women in favor of stricter gun control is between 304 and 336, inclusive?

(d) _____

5. Lisa is a softball player with the batting percentage of 0.25.

(a) (2 points) Find the probability that she has a hit on exactly the 4th at bat.

(a) _____

(b) (2 points) Find the probability that she has a hit after the 4th at bat.

(b) _____

6. (3 points) Mark is a car salesman that sells in average 12 cars per month. Find the probability that he sells between 10 and 15 cars, inclusive, per month?

6. _____