

Elementary Statistics	Name: _____
Study Guide 15	Class: _____
Due Date: _____	Score: _____

No Work ⇔ No Points

Use Pencil Only ⇔ Be Neat & Organized

1. Suppose you buy a life insurance policy that will cost you \$500, and your family will collect \$100,000 in the event that you die within one year of the date of the purchase of this policy. Study shows that the probability that you die within one year of the date of the purchase of this policy is 0.5%.

- (a) (3 points) Complete the following table. Use reduced fraction for probabilities.

$x$ , Net earning per policy sold	$P(x)$ , Probability of net earning per policy sold

- (b) (2 points) Find the expected value per policy sold for the insurance company.

(b) \_\_\_\_\_

2. Uncle Sam invites you to draw a card from a full deck of playing cards. You must pay \$2 to play but you have a chance to win \$13 if you draw an ace.

- (a) (4 points) Complete the following table for the house.

$x$ , Net gain for the house per bet	$P(x)$ , Probability of net gain for the house per bet

- (b) (2 points) Find the expected value for each draw for the house.

(b) \_\_\_\_\_

3. Suppose you are attending a fund raising event that will cost you \$25 but you have a chance to win a brand new car with MSRP of \$25,000.

There are 2000 paid attendees at this event.

(a) (1 point) What is the probability that you win the brand new car in decimal notation?

(a) \_\_\_\_\_

(b) (2 points) What is the probability that you do not win the brand new car in decimal notation?

(b) \_\_\_\_\_

(c) (2 points) Complete the following table.

$x,$ Net gain per ticket sold	$P(x),$ Probability of net gain per ticket sold

(d) (2 points) Find the expected value for the fundraisers per person that attends this event.

(d) \_\_\_\_\_

4. You pay \$5 and select a number from 1 to 250. If your number is chosen, you will collect \$500.

(a) (4 points) Complete the following table for your gain or loss.

$x,$ Player net gain or loss	$P(x),$ probability of player net gain or loss

(b) (2 points) Find the expected value for player earning or loss.

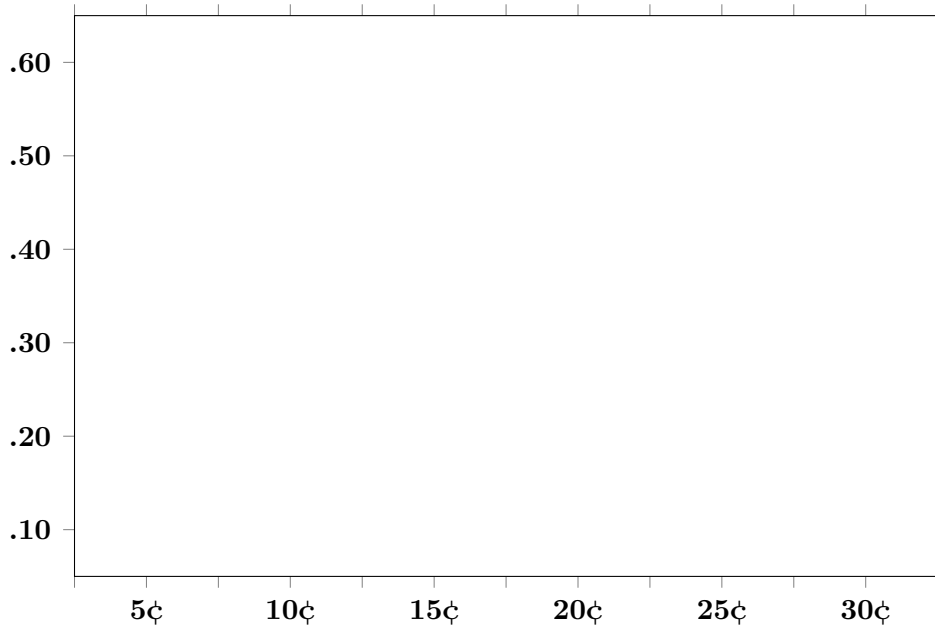
(b) \_\_\_\_\_

5. A box contains 2 dimes and 3 nickels. Suppose two coins are randomly selected without replacement from this box.

(a) (4 points) Complete the the probability distribution table below for the total amount in cents. Use decimal notation for probabilities.

$T$ , total amounts in cents	10¢	15¢	20¢
$P(T)$			

(b) (3 points) Graph the probability distribution histogram.



(c) (2 points) Find  $\mu$  in cents.

(c) \_\_\_\_\_

(d) (2 points) Find  $\sigma$ .

(d) \_\_\_\_\_

(e) (2 points) Find the exact value for  $\sigma^2$ .

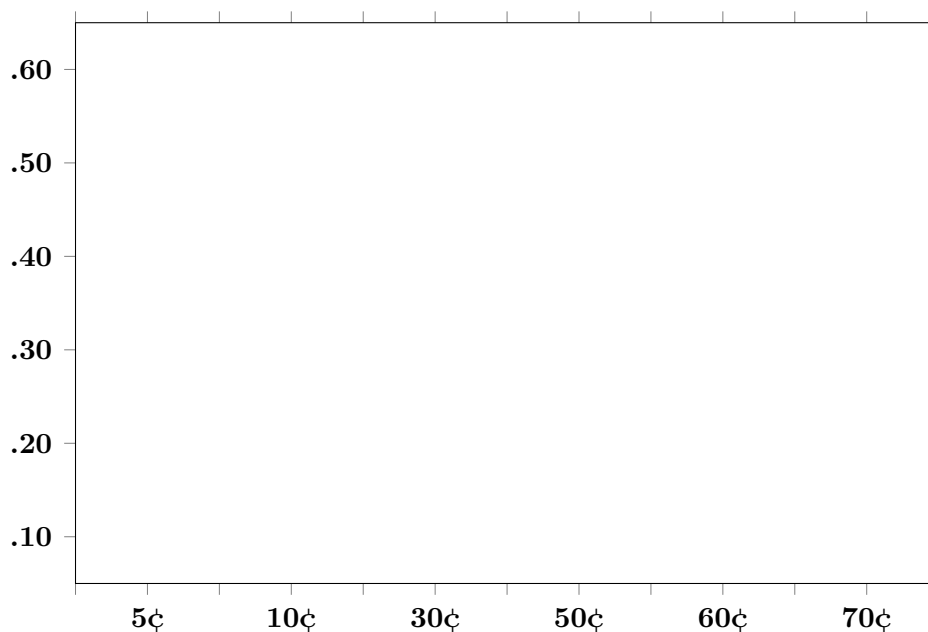
(e) \_\_\_\_\_

6. A box contains 4 quarters and 6 nickels. Suppose two coins are randomly selected with replacement from this box.

(a) (4 points) Complete the the probability distribution table below for the total amount in cents. Use reduced fraction for probabilities.

$T$ , total amounts in cents	¢	¢	¢
$P(T)$			

(b) (3 points) Graph the probability distribution histogram.



(c) (2 points) Find  $\mu$  in cents.

(c) \_\_\_\_\_

(d) (2 points) Find  $\sigma$ .

(d) \_\_\_\_\_

(e) (2 points) Find the exact value for  $\sigma^2$  in reduced fraction.

(e) \_\_\_\_\_