First Exam

Write all answers in your blue book and show all work there. Return your exam in your blue book.

22 pts.

1) Consider the following table that shows the education levels of employees at a firm.

Years of Education	freq.	Cum. Freq.
<9	10	10
9 to 11	10	20
12	40	60
13 to 15	5	65
16	30	95
>16	2	97

a) What percentage of the firm has exactly a high school education (12 years)?

b) What percentage of the firm has at least a high school education (12 years)?

c) Calculate the median level education, if possible. If not possible, explain why not.

d) Calculate the mean level of education, if possible. If not possible, explain why not.

e) Could the standard deviation of the education be 20? Why?

f) Could a histogram be drawn from these data? Why?

20 pts.

2) Suppose that we have the following weights of ten people {106,110,112,120,130,137,144,154,164,180}.

a) Find the mean and the median.

b) Round to the nearest ten and find the mode of the rounded values.

c) Find s^2.

d) Are these data skewed? If so, which way? Calculate the coefficient of skewedness.

15 pts.

3) a) How many ways are there to select 3 items from a batch of 10, if the order of selection matters?

b) How many ways are there to select 3 items from a batch of 10, if the order of selection doesn't matter?

c) How many ways are there to select 98 items from a batch of 100, if the order of selection doesn't matter?

14 pts.

4) a) Find the probability of selecting 2 Republican voters (in two chances) from a group of 100, when 60 of those voters are Republican.

b) Find the probability of selecting 2 Republican voters and 2 Democratic voters from a group of 100, when 60 of those voters are Republican and the rest are Democrats

14 pts

5) At a casino a 3-colored wheel is spun, 40 percent of which is green, 35 percent of which is blue and 25 percent of which is red. You win $2 if the spin ends green and $1 if it ends blue. You lose $5 if it ends red.

a) Find the expected value of the game's payoff to you.

b) If you played the game a large number of times, how much would you expect win (or lose) per try?

15 pts.

6) Consider the Venn Diagram below.
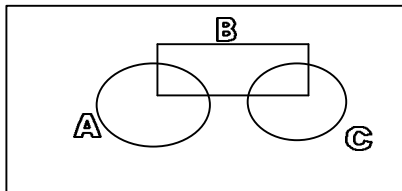
a) Which events are clearly mutually exclusive?

b) Suppose that $P(A \cap B) = 0$ and $P(B \cap C) = 0$ and that $P(A) = P(B) = P(C) = 1/3$. Find $P(A \cup B \cup C)$.

c) Suppose that $P(A \cap B) = 0$ and $P(B \cap C) = 0$ and that $P(A) = P(B) = P(C) = 1/5$. Find the probability that neither A, B or C will occur.

I have neither given nor received unfair aid on this test nor am I aware of anyone else who has.

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