

meals provided.

[10]

a. Determine the *odds* that the student eats at Chartwell's.

b. Determine the odds that the student doesn't eat at Chartwell's.

4. Up until about ten years ago, a 7-digit phone number in the United States had the restriction that neither of the first two digits could be a 0 or 1. Thus 183-4564 was invalid because the first digit is a "1" and 703-9876 was invalid because the second digit is a "0."

[15]

a. Assuming no other restrictions, how many possible 7-digit phone numbers could be constructed?

b. If you were randomly assigned a 7-digit phone number what was the probability that all of the digits would be odd numbers. (For example, 357-9791 contains only odd digits.)

[5]

5. A child is given a set of 10 blocks, each painted with a different letter of the alphabet, as

seen below.

A H Y F E L B X Z J

- a. You ask them to pick 6 of the blocks and stack them up, one on top of another. How many different arrangements of blocks could be constructed? Here is just one example:

[15]

B
Z
X
H
J
Y

- b. As part of a school-readiness test, from the ten blocks provided you ask the child to select the six letters nearest the beginning of the alphabet, and then arrange them in alphabetical order. If they are just guessing, what is the probability the child chooses the correct 6 letters and stacks them in the correct order? Give both an *exact* and a *rounded* answer as indicated below.)

[5]

Exact Answer: (fractional form) *Rounded Answer:* (like “8 out of a hundred”)

6. Compute the following (showing *all* work).

[15]

a. $7!$

b. $C_{10,4}$

c. $P_{8,3}$

7. Explain in words what is represented by the quantity in Question #6b.

[5]

EXTRA CREDIT: [+5]

In a poker game, a standard deck of 52 cards is thoroughly shuffled and you are dealt a hand of 5 cards. What is the probability that your hands contains four 10's? (HINT: First compute the total number of possible 5-card hands, and then the number of hands that contain four 10's.)