Final Exam: Some problems for review

The Final Exam for Math 107 will take place at **SCB 304** (the regular classroom) from **11 AM to 1:50 PM on Wednesday, December 11, 2024**. The exam will be done on Pearson's MyLab Math. You will bring your own laptop and pocket calculator (of any kind). You are not allowed to use any app on your laptop, even a calculator app. Your web browser should occupy the full screen at all time. Phones and notecard are not allowed. The instructor will provide scratched papers for you. When you are seated, go to Canvas and click on Final Exam in Week 15 module. You will be directed to MyLab Math, which will ask you for an access code. The instructor will give you the access code.

The material covered is Chapter 6 and 7, except for Hypothesis Testing (part of Section 6D) and Section 7D. You should review the homework problems, worksheets, quizzes, examples given in the lectures. It is always a good idea to study for the exam with someone. Some problems to practice:

1) How many different five-character passwords can be formed from the lowercase letters of the alphabet if repetition is not allowed?

2) How many 6-person lineups can be formed from a 10-player volleyball roster? (In volleyball, every player plays every position.)

3) How many different telephone numbers of the form *aaa-bbb-cccc* can be formed if the area code *aaa* can only begin with the numbers 2 through 7 and the exchange *bbb* cannot begin with 0?

4) Find the probability of being dealt a 10, jack, queen, king, and ace, all of the same suit, from a standard 52-card deck.

5) Three people will be chosen as jurors from a pool of 12 people. How many different juries are possible?

6) The price of a ticket is \$1 and there is a 1 in 10 probability of winning \$1, a 1 in 50 probability of winning \$5, a 1 in 500 probability of winning \$100, and a 1 in 1 million probability of winning

\$100,000. Find the expected value (to you) of a single ticket. Find the average winnings or loss expected if you purchase 1000 tickets.

7) Suppose that prices for a particular model of used car in your region are normally distributed with a mean of \$15,000 and standard deviation of \$1500. Answer each of the following questions.

a) About what percentage of the cars are priced between \$13,500 and \$16,500?

b) About what percentage of the cars are priced between \$12,000 and \$19,500?

c) What is the standard score of a price of \$16,000, and in what percentile is that price?

d) If there is a total of 350 used cars of that model available, how many are priced below \$13,000?

8) In a pre-election poll with 1600 respondents, 56% favored raising sales taxes to pay for new playground equipment. Find the margin of error and the 95% confidence interval for the poll.