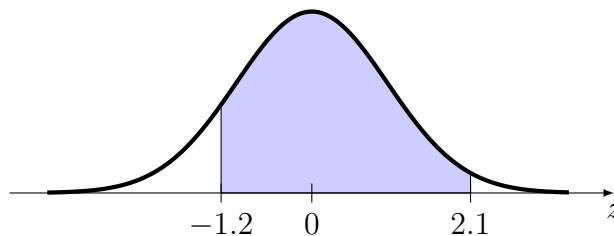


1. 10 pts. each Groups of adults are randomly selected and arranged in groups of three. The random variable X is the number in the group who say they would feel comfortable in a self-driving vehicle. The probability distribution of X is as follows:

X	0	1	2	3
$P(X)$	0.358	0.439	0.179	0.024

- (a) Find the mean μ of the distribution.
- (b) Find the standard deviation σ of the distribution.
- (c) What's the probability at least one member of a randomly selected group will feel comfortable in a self-driving vehicle?
2. 10 pts. each A multiple-choice quiz consists of 8 questions, each question having 4 choices (1 right and 3 wrong). Suppose Hal guesses the answer to every question on the quiz.
- (a) What's the probability Hal will get exactly 4 questions right?
- (b) What's the probability Hal will pass the quiz, if passing means getting a score of at least 70%?
- (c) What's the probability Hal will get at least one question right?
3. 10 pts. each During the 20th century the mean number of hurricanes to strike the U.S. mainland per year was about 0.6. Assuming the Poisson distribution, find the probability that the number of hurricanes striking the U.S. mainland in any given year is...
- (a) Exactly two.
- (b) More than two.
4. 10 pts. Find the area of the shaded region under the standard normal distribution curve.



5. 10 pts. Find the probability $P(Z < -2.58 \text{ or } Z > 2.58)$, assuming the random variable Z has the standard normal distribution.
6. 10 pts. If the sitting back-to-knee length of men is normally distributed with a mean of 23.5 inches and a standard deviation of 1.1 inches, find P_{80} , the length separating the bottom 80% from the top 20%.

7. 10 pts. each Wires manufactured by a company for use in a computer system are found to have resistances that are normally distributed with a mean of 0.13 ohm and standard deviation of 0.005 ohm. Find the probability that a randomly selected wire has a resistance
- (a) over 0.142 ohm
 - (b) below 0.128 ohm
 - (c) between 0.123 and 0.139 ohm.
8. 15 pts. During a certain week, the mean price of gasoline in California was \$4.220 per gallon with a standard deviation of $\sigma = \$0.082$. A random sample of 36 gas stations is selected from this population. What is the probability that the mean price for the sample is over \$4.28 that week?