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Answers

1. Suppose the price of 87 octane gas among stations in LA county is normally distributed with a population mean of \$2.88/gallon and a standard deviation of \$.08.
 - a. What percentage of gas stations are charging more than \$3.00/gallon?
 - b. What is the probability a randomly selected station will charge between \$2.80 and \$2.96?
 - c. What is the probability a station will charge between \$2.72 and \$3.04?
 - d. What is the probability a station would charge less than 2.75/gallon?
 - e. If you purchased gas at a price that was two standard deviations below the population mean, what price did you pay for gas?
2. Explain why the following statement does not make sense: "The normally distributed set of test scores has a population mean equal to 40 and a standard deviation equaling 30."
3. On a civil service exam, the grades are distributed as $N(70,100)$. The fire department will hire the applicants whose grades are among the top 10% of the population. What is the minimum grade required to be hired?
4. A flashlight battery is guaranteed to last 40 hours. Tests indicate that the length of life of these batteries is normally distributed with mean 50 and variance 16. What percentage of batteries will fail to meet the guarantee?
5. Suppose a local police department requires police recruits to be at least 65 inches tall. Suppose the height distribution among women in inches is $N(64,25)$ and the distribution for men is $N(69,12)$. What is the chance that a randomly selected male would satisfy the height requirement for a police recruit? What is the chance for a randomly selected female?
6. Scores on a personnel exam at the Anderson Electronics Company are normally distributed with mean $\mu=73$ and standard deviation $\sigma=5$. An employee scored an 80 on the exam. What proportion of people taking the test received a score higher than the employee?