Statistics Using the TI-83 Graphics Calculator

The Normal Distribution
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Problem 9: A company manufactures light bulbs that have a life expectancy that is normally distributed with a mean of 750 hours and a standard deviation of 40 hours. Find the probability that a bulb burns between 728 hours and 784 hours.

Problem 10: The heights of 6 year old girls are normally distributed with a mean of 46 inches and a standard deviation of 2.17 inches. Find the probability that a girl selected at random will have a height less than 44 inches.

Problem 11: In a letter to Ann Landers, a wife claimed to give birth to a baby 308 days after a visit from her husband who was in the Navy and stationed on board a ship. Pregnancies are normally distributed with a mean of 268 days and a standard deviation of 15 days. Does the wife have a problem? (Triola, Elementary Statistics, Addison Wesley, 1992)

Problem 12: On a SAT exam administered by the CEEB, the mean math score was 475 with a standard deviation of 130. If a scholarship is available to students with scores above the 85th percentile, what is the score needed to be eligible for the scholarship?

Problem 13: The life of an electric drill when used commercially follows a normal distribution with a mean of 8 years with a standard deviation of 1.25 years. The manufacturer will replace free all drills that fail while under warranty. If the manufacturer is willing to replace only 5% of the drills that fail, how long a guarantee should be offered?

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