For each of the following questions, draw and label a normal curve that represents the question asked.

1. The circumferences of NBA basketballs follow a normal distribution where $\mu = 29.5$; and $\sigma = 0.1$ inches.
   a. What proportion of NBA basketballs will be at least 29.7 inches?
   b. What proportion of NBA basketballs are smaller than 29.4 inches?
   c. If an NBA basketball was found to be 29.3 inches, what percentile would it be?
   d. What circumference would be at the 90th percentile?
   e. Suppose 30 basketballs are used for warm ups before an NBA game. About how many balls would be between 29.4 and 29.6 inches?

2. The number of minutes Mr. Kelly drives to work can be represented by a normal distribution with the parameters $\mu = 24$ and $\sigma = 3$ minutes.
   a. On average, how long does it take Mr. Kelly to drive to work?
   b. If Mr. Kelly comes to work for 180 days, about how many drives to work will be less than 20 minutes?
   c. What percent of the time does it take Mr. Kelly longer than 30 minutes to drive to work?
   d. What time represents the 98th percentile? Explain what this time means.

3. Suppose the number of total MC fails by students who complete the A2 course is normally distributed with an average number of total MC fails as 21 with a standard deviation of 9.
   a. Find μ and σ.
   b. What # of MC fails would be considered the 75th percentile?
   c. What percent of students fail between 5 and 20 total MCs?
   d. Mr. Sully's class has 50 students. About how many students will fail less than 5 total MCs?

12.3 Corrective Assignment Answers

1. a. Draw the curve! 29.5 in the middle, increases by 0.1 on x-axis. About 2.3% 1b. About 15.86% 1c. about 2nd percentile 1d. 29.63 inches 1e. about 68% which would be about 20.48 balls. Between 20 and 21 balls.
2a. About 24 minutes. 2b. About 16.4 drives into work. 2c. About 2.2% of the drives 2d. The 98th percentile is 30.16 minutes. This means that 98% of the time, the drive will be about 30.2 minutes or less.
3a. $\mu = 21$ fails and $\sigma = 9$ fails 3b. About 27 fails. 3c. about 41.8% 3d. About 1.5 students. Between 1 and 2 students will fail less than 5 MCs.