Section 3.4 Worksheet – Normal Distribution

MDM4U
Jensen

1) The distribution of vocabulary scores for seventh-graders in Indiana is $N(6.84, 1.55^2)$.

a) Sketch a normal curve for this distribution of vocabulary scores. Label the points that are 1, 2, and 3 standard deviations from the mean.
b) What percent of the vocabulary scores are less than 3.74?
c) What percent of scores are between 5.29 and 9.94?

2) For Major League Baseball players, the mean of 432 batting averages is 0.261 with a standard deviation of 0.034. Suppose that the distribution is normally distributed.

a) Sketch a normal curve for this distribution of batting averages. Label the points that are 1, 2, and 3 standard deviations from the mean.
b) What percent of batting averages are between 0.261 and 0.329?
c) What percent of batting averages are less than 0.227?

3) Out of 100 packages of jawbreakers, 68 packages contain between 120 and 150. Use your knowledge of normal distribution to estimate the average number of jawbreakers and the standard deviation of the sample.

4) The amount of coffee an automatic machine dispenses (in ounces) can be represented by the normal distribution $X \sim N(10.2, 0.6^2)$.

a) What range does 95% of the quantity of coffee dispensed lie between?
b) What percent of cups dispensed contain greater than 10.8 ounces?
c) What percent of cups dispensed contain between 9.6 and 10.2 ounces?
d) What percent of cups dispensed contain less than 9 ounces?

5) Burns Appliance Co. offers a replacement warranty on their toaster ovens, which have a mean lifespan of 8.5 years, with a standard deviation of 0.8 years. How long a warranty would they establish if they could only afford to repair no more than 2.5% of the toaster ovens they make?