

Stat 140 - More Practice with Normal Distributions

(Adapted from Exercise 5.7 in the book) Environmental Protection Agency fuel economy estimates for automobile models tested recently predicted a mean of 24.8 mpg and a standard deviation of 6.2 mpg for highway driving. Assume that a normal model can be applied.

There are two sides.

(a) Draw the model for auto fuel economy. Label it, showing what the 68-95-99.7 rule predicts.

(b) About what percent of autos get more than 31 mpg?

(c) About what percent of cars get between 31 and 37.2 mpg?

(d) About what percent of cars get less than 10 mpg? (You could do this using either R, or by getting approximate bounds on the probability from the 68-95-99.7 rule – it's good to know how to do it both ways)

(e) What is the 90th percentile of fuel economy? (You could do this using either R, or by getting approximate bounds on the percentile from the 68-95-99.7 rule – it's good to know how to do it both ways)

(f) What percent of cars get exactly 15.0176854 mpg? (Draw a picture, and remember that we interpret probabilities as areas under the curve)