

STAT 221 Introduction to Probability and Statistics Winter 2012

Quiz 8

Taken on Mon Jan 23. You may work with a group of as many as 4 students, submitting one quiz with all names, provided that you all contribute to the work. You may use your notes.

Suppose that the lifetimes of tires (of a particular brand) follow a normal distribution with mean 64,000 miles and SD 6,000 miles.

1. Draw a well-labeled sketch of this distribution.
2. What percentage of tires last for between 58,000 and 70,000 miles?
3. What percentage of tires last for less than 70,000 miles?
4. Calculate and interpret the z -score for a tire that lasts for 80,000 miles.
5. If the manufacturer wants to offer a guarantee so that 97.5% of all tires last for longer than the guaranteed lifetime, how many miles should they guarantee?