

STAT200 Problem Solutions for Chapter 6

*These truly are **bare** answers. Yours must be much more explanatory.*

2.32: 0.9998. *Note here and in subsequent problems that software, including calculators, has much more accurate tables than the ones in the book. Thus, if you use software, you may get somewhat different answers. If they're vastly different, I note them in parentheses (0.9995).*

2.40: $-2.33, 2.33$.

3.14: 98.74%.

3.22: 16.5 in.

3.24: 21.1 in., 25.3 in.

4.10:

a. The means of 46.0, 51.5, 54.0, 55.0, 57.0, 59.5, 60.5, 62.0, 62.5, 63.0, 64.0, 65.0, 66.0, 68.0 have the corresponding probabilities $1/25, 2/25, 2/25, 2/25, 3/25, 2/25, 2/25, 1/25, 2/25, 2/25, 1/25, 2/25, 2/25, 1/25$. (Here, The Prof admits the possibility of a typing error. The first one to find it gets a reward.)

b. 59.4.

c. Yes, yes.

4.14:

a. The medians of 1.8, 2.7, 3.6, 4.5, 5.4, 7.2, 9.25, 10.15, 11.95, 16.7 have the probabilities $[1, 2, 1, 2, 2, 1, 2, 2, 2, 1]/16$.

b. 7.325.

c. No. The sample medians have a mean of \uparrow , but the population median is 5.4, so the sample medians do not target the population median. The sample median is a biased estimator of the population median.

5.10: 0.9999. The casino is almost sure to make a profit.

5.14:

a. 0.5793.

b. 0.9772.

c. The helmets would not fit 42% of the men.

5.20:

a. 0.4602 (0.4588).

b. 0.0655 (0.0656). Yes, because an overweight condition could occur on 6.5% of flights. That risk is too high for me. How about you?

6.18: 0.0087. Unusual.

6.24: 0.0708.

6.30: 0.1894 (0.1906). No. If the selection rate of left-handed jurors is actually 12%, it is easy to get no more than 25 left-handed jurors when 250 are selected randomly. (Why would anyone worry about anything so stupid?)

7.20: $-1.38, -0.67, -0.21, 0.21, 0.67, 1.38$; not normal.