Unit 6: Statistics Lesson 6.3

Game On!

(3) 1. The sodium content in various brands of hot dogs was measured and the results are shown in the table below. The data for each type of hot dog is approximately normally distributed.

Sodium Levels per Hot Dog for Various Brands (mg)			
	Beef	**Meat**	**Poultry**
Mean	401.2	418.5	459.0
Standard Deviation	99.8	91.1	82.2

Suppose a company is planning to introduce a new line of low-sodium hot dogs. The beef version will have 279 mg of sodium, the meat version will have 316 mg, and the poultry version will have 347 mg.

a. Determine the *z*-score for each of the new low-sodium hot dogs.

b. Which type of new hot dog has the lowest sodium compared to other brands in its category? Explain.

c. Suppose the company wanted a low-sodium meat hot dog to have a *z*-score of –1.3. How much sodium would this hot dog have?

(5) 2. A group of 894 women aged 70 – 79 had their height and weight measured. The mean height was 159 cm with a standard deviation of 5 cm and the mean weight was 65.9 kg with a standard deviation of 12.7 kg. Both sets of data are fairly normal.

a. Suppose you were asked for a range of typical heights and weights for this population of women. What values would you give? Explain.

b. Which of the two measurements appears more variable? Explain.

c. What percentage of the population is expected to be taller than 166 cm?

d. What percentage of the population is expected to weigh between 55 and 75 kg?

e. Above what weight will 85% of the population lie?

(3)

3. The edible portion of grape clusters from a Mexican farm were measured to have a mean weight of 429.5 g and a standard deviation of 42.8 g. For selling purposes, the clusters are divided into two groups:

   Small – the lightest 20%
   Regular – the largest 80%

   a. What mass will divide the small and regular groups?

   b. If 20 000 clusters are picked, how many do you expect will be over 500 g?

   c. What assumption was made to answer the previous questions?

(2) 4. A normally distributed set of data has been generated where 50% of the data lies below 97 and 70% lies below 104. Determine the mean and standard deviation of this data.

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You have completed *Lesson 6.3 Game On!* Please review all work in *Workbook 6A* to ensure it is your best work. Submit *Workbook 6A* for marking at this time and proceed to *Lesson 6.4* in the *Module*.

End Of Workbook 6A