

Name: _____

Problem Set 1.7

1. The mean and standard deviation weight for a 6 month old boy are 18.5 pounds and 2.4 pounds respectively. If a 6 month old boy weighs 11.9 pounds, what is his z-score? Source: Child-Specific Exposure Factors Handbook, Infant weights, oaspub.epa.gov/eims/eimscomm.getfile?P_download_id=36528, 12/27/11

2. The mean and standard deviation weight for a 6 month old girl are 17.0 pounds and 1.8 pounds respectively. If a 6 month old girl has a z-score of 0.3, how much does she weigh?

3. A 2009 study published in the Journal for Human Factors and Ergonomic Society measured the reaction time for drivers who were not texting compared to those who were texting. The results:

Driving Brake Onset Time in milliseconds		
	Mean (ms)	Standard Deviation (ms)
Not Texting	881	349
Texting	1077	380

Source: SAGE, Text Messaging During Simulated Driving, <http://hfs.sagepub.com/content/51/5/762.full.pdf?keytype=ref&siteid=sphfs&ijkey=gRQOLrGIYnBfc>, 12/27/11

a) Would a driver rather have a positive or negative z-score for brake onset time? Explain.

b) If a driver who was not texting had a z-score of +1.0, what is the corresponding brake onset time?

c) If a driver who was texting had a z-score of +1.0, what is the corresponding brake onset time?

d) For a driver who was texting, what z-score would he/she need to have in order to achieve the mean not texting brake onset time for 881 ms?

4. ☒ Refer to the data set for “Motor Vehicles” from Lesson 1.6.

a) What is the z-score for Wyoming? What does the z-score mean?

b) What state got the lowest z-score? Write a complete sentence describing what the z-score means in the context of motor vehicles.

c) What is true about all states that have negative z-scores?

5. ☒ You are taking Physics and you just took your 1st test. The scores of everyone in the class are 81, 80, 80, 81, 81, 82, 80, 81, 82, 80, 80, 81. (The data set is called “Physics Test 1”.)

a) Was this a fair test? Why or why not?

b) Your friend in the class is bummed because he got an 80. What would you tell him?

6. ☒ The scores on the 2nd test were 79, 79, 85, 79, 89, 87, 94, 97, 72, 74, 79, 79. You got a 79. Write a short paragraph on how you did. (The data set is called “Physics Test 2”)

7. ☐ Three people got an 88% on a test, one in period 3, one in period 5, and one in period 7. The scores of all the students in the three classes are shown below. Did they all do the same relative to their classmates? Who did the best? Who did the worst? Explain. (The data set is called "Test Scores-Periods 3,5,7".)

Period 3: 90, 77, 77, 83, 79, 77, 92, 84, 83, 83, 88

Period 5: 88, 62, 75, 83, 78, 74, 96, 84, 83, 94, 96

Period 7: 82, 82, 82, 82, 82, 83, 83, 83, 83, 83, 88

