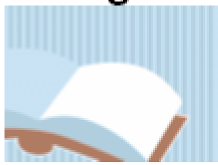
Daily Lesson Plans - Algebra 1 - Chapter 6 Wednesday, Sept. 16 2009

Lesson Objectives & Standards Addressed	**Students will find the percent of observations falling below any value in a normal model.** **Students will compare values from different distributions using z-scores.** All Objectives Unit 1
Daily Agenda 	1. Go over Practice Quiz 6. 2. Go over review problems 3. Videos
Homework Assigned	Practice Test and finish Review Problems Quiz Thursday on Chapter 6 Review Friday and Monday. Unit 1 Test Tuesday.

Statistics Quiz A – Chapter 6 Name ___________________________

1. Students taking an intro stats class reported the number of credit hours that they were taking that quarter. Summary statistics are shown in the table.

$\bar{x}$	16.65
s	2.96
min	5
Q1	15
median	16
Q3	19
max	28

a. Suppose that the college charges \$73 per credit hour plus a flat student fee of \$35 per quarter. For example, a student taking 12 credit hours would pay \$35 + 12(\$73) = \$911 for that quarter.

i. What is the mean fee paid?

$35 + 16.65(73) = \$1250.45$

ii. What is the standard deviation for the fees paid?

$\$73(2.96) = \$216.08$

iii. What is the median fee paid?

$35 + 16(73) = \$1203$

iv. What is the IQR for the fees paid?

$IQR = 19 - 15 = 4$

$73(4) = \$292$

b. Twenty-eight credit hours seems unusually high. Would you consider 28 credit hours to be unusually high? Explain.

$IQR = 4$

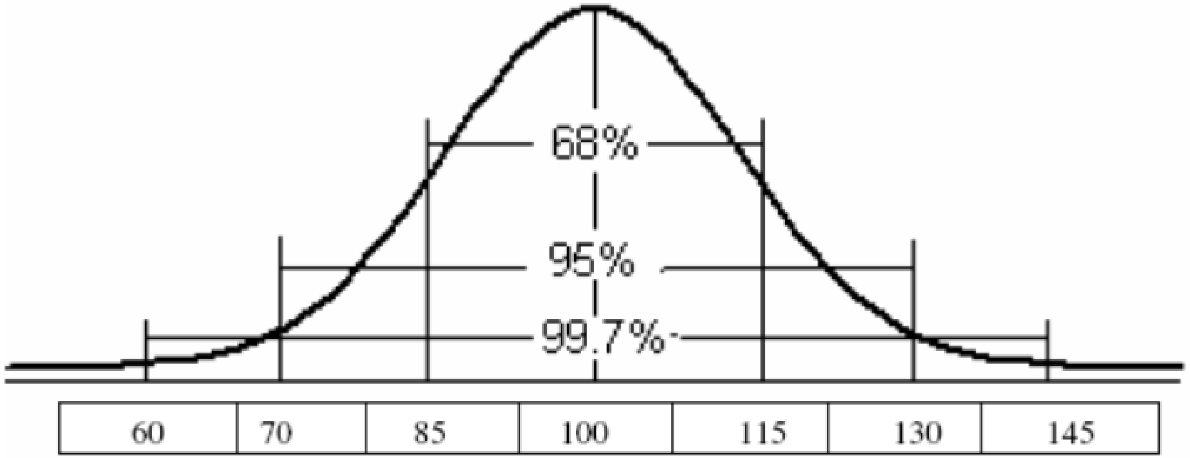
$\underline{\times 1.5}$

6

$Q_3 + 1.5(IQR) = 19 + 6 = 25$

Since 25 is the cutoff for outliers, 28 would be an outlier and be unusually high.

2. The Wechsler Adult Intelligence Scale – Revised (WAIS-R) follow a Normal model with mean 100 and standard deviation 15. Draw and clearly label this model.



3. Adult female Dalmatians weigh an average of 50 pounds with a standard deviation of 3.3 pounds. Adult female Boxers weigh an average of 57.5 pounds with a standard deviation of 1.7 pounds. One statistics teacher owns an underweight Dalmatian and an underweight Boxer. The Dalmatian weighs 45 pounds, and the Boxer weighs 52 pounds. Which dog is more underweight? Explain.

$$z_D = \frac{45-50}{3.3} = -1.52$$

$$z_B = \frac{52-57.5}{1.7} = -3.24$$

The Boxer is more underweight.

4. Human body temperatures taken through the ear are typically 0.5° F higher than body temperatures taken orally. Making this adjustment and using the 1992 *Journal of the American Medical Association* article that reports average oral body temperature as 98.2° F, we will assume that a Normal model with an average of 98.7° F and a standard deviation of 0.7° F is appropriate for body temperatures taken through the ear.
   a. An ear temperature of 97° F may indicate hypothermia (low body temperature). What percent of people have ear temperatures that may indicate hypothermia?

$$z = \frac{97-98.7}{0.7} = -2.43$$

$$P(z < -2.43) = \boxed{0.0075}$$

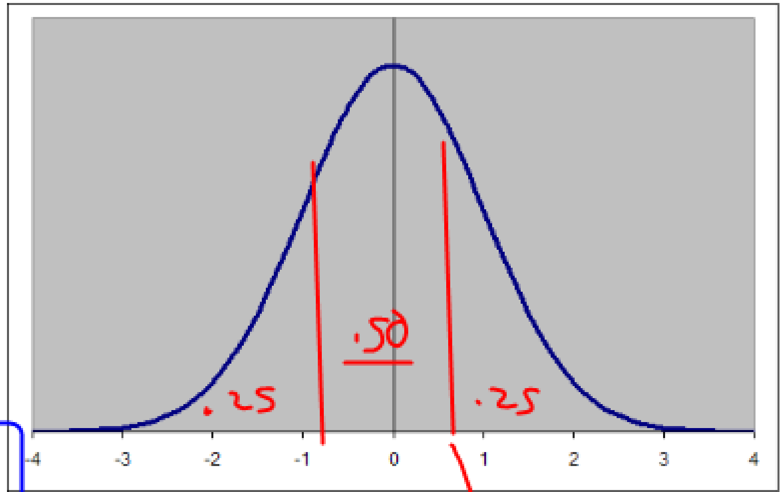
   b. Find the interquartile range for ear temperatures.

invnorm(.25) = −.67

$$-.67 = \frac{x-98.7}{0.7} \qquad .67 = \frac{x-98.7}{.7}$$

98.2 99.2

$$IQR = 99.2 - 98.2 = \boxed{1.0°F}$$



c. A new thermometer for the ear reports that it is more accurate than the ear thermometers currently on the market. If the average ear temperature reading remains the same and the company reports an IQR of 0.5° F, find the standard deviation for this new ear thermometer.

$$IQR = [98.7 + .67\sigma] - [98.7 - .67\sigma] = 0.5$$

$$1.34\sigma = 0.5$$

$$\sigma = \frac{0.5}{1.34}$$

$$\sigma = .37^\circ F$$