Math 1120 **Review for the Third Exam** **Spring 2011**

1. Calculate the mean, median and mode for each of the following data sets.

   (a) 4, 8, 3, 3, 5, 3, 5, 7, 1, 9, 0, 2

   (b) 18, 22, 22, 17, 30, 18, 12

2. Selina claimed that in her class all of the scores on a test were either 100 or 50, so the mean must be 75. Explain whether or not this reasoning is valid.

3. Use the data in the table to calculate the following:

   (a) Range.

   (b) Mean.

   (c) Variance.

   (d) Standard Deviation.

Salary	Number of Workers
$18,000	2
$22,000	4
$26,000	4
$35,000	3
$38,000	12
$44,000	8
$50,000	4
$80,000	2
$150,000	1

4. The youngest person in a company is 24 years old. The ranges of ages is 34 years. How old is the oldest person in the country?

5. To receive an A in a class, Willie needs at least a mean of 90 on five exams. Willie's grades on the first four exams were 84, 95, 86, and 94. What minimum score does he need on the fifth exam to receive an A in the class?

6. In a MATH1300 class at CU, the grades on the first exam were as follows:

   92 98 54 78 88 34 76 82 99 87 86 55 67 73 22 89 83 76

   (a) Find the mean.

   (b) Find the median.

(c) Find the mode.

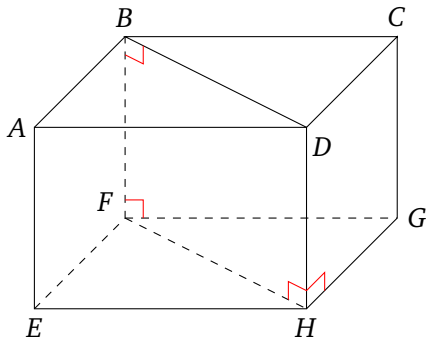
(d) Find the inner quartile range.

(e) Find the variance.

(f) Find the standard deviation.

7. Assume a normal distribution and that the average visit to Professor Slam's office lasts 5 minutes, with a standard deviation of 2 minutes. What percentage of visits lasted longer than 7 minutes? What percentage lasted longer than 9 minutes?

8. The following figure is a box in which the top and bottom are rectangles and $\overline{BF}$ perpendicular to plane FGH. Answer the following.



(a) Find the intersection of $\overline{BH}$ and plane DCG.

(b) Name two pairs of perpendicular planes.

(c) Name two lines that are perpendicular to plane EFH.

(d) What is the measure of the angle $\angle DHE$?

(e) Name an angle in the diagram that is NOT 90 degrees.

(f) Name two lines that do not intersect.

9. Consider a standard wall clock. Answer the following questions.

(a) How far does the hour hand travel (in degrees) in one minute?

(b) How far does the minute hand travel (in degrees) in one minute?

(c) Using your previous answers, what is the angle measure between the hour and minute hands at 3:30 PM?

(d) What is the angle measure between the hour and minute hands at 3:15 PM?

10. For each description, draw an example of a curve/shape matching that description.

(a) A simple non-closed curve.

(b) A simple, closed, convex polygon.

(c) A closed and concave curve.

(d) A curve that is neither simple nor closed.

(e) A simple, closed, convex curve that is not a polygon.

11. Notice that a pentagon has only two diagonals that intersect at a given vertex. (Draw this to convince yourself. It is not immediately obvious.) Determine how many diagonals intersect at a given vertex in each of the following polygons.

(a) Hexagon.

(b) Decagon.

(c) 20-gon.

(d) n-gon for arbitrary positive integers n.