GRADE 12 ESSENTIAL
ASSIGNMENT
PERCENTILE RANK AND TRIMMED MEANS

Name: _____

Date: _____

Show work (neatly) for full marks. *Round* decimal answers to nearest 0.01 (as always) unless otherwise indicated.

1. Determine whether the following statements are True or False. Circle the T or F accordingly.

a) The higher the percentile rank of a score, the greater the percent of scores above that score. T / F

b) A mark of 75% always has a percentile rank of 75. T / F

c) A mark of 75% might have a percentile rank of 75. T / F

d) It is possible to have a mark of 95% and a percentile rank of 40. T / F

e) The higher the percentile rank, the better that score is compared to other scores. T / F

f) A percentile rank of 80, indicates that 80% of the scores are above that score. T / F

g) P_{50} is the median. T / F

h) Two equal scores will have the same percentile rank. T / F

2. The following is a set of 30 scores achieved by students on an exam:

18 23 33 38 38 38 42 51 55 56
57 63 65 66 68 68 68 68 76 80
81 82 85 89 92 93 93 95 97 100

Determine the percentile rank for each of the following scores. Remember to round all percentiles up to the next whole number.

a) 18 b) 68

3. A total of 700 individuals take a government employment exam. Carmela scores 618 out of 800 marks. There are 520 individuals who score less than 618 marks and no one else has a score of 618.

a) Find Carmela's percent score.
b) Find Carmela's percentile rank.
c) In order to get a job with the government an individual has be in the top 20% of people writing the exam. Will Carmela get a job? Explain.

4. Shana's final mark in her Grade 12 math class is 92%. Of the 28 students in her class, three received the same grade as Shana and 22 have lower marks.

a) Find Shana's percentile rank.

b) What percentage of students have a final mark higher than Shana?

5. The examination results of 4000 students are analyzed and the following percentiles are calculated:

$P_{20} = 45$; $P_{50} = 61$; $P_{75} = 76$; $P_{90} = 89$

a) Approximately what percentage of students has a score of 45 or less?

b) Approximately what percentage of students scored more than 76?

c) Approximately what percentage of students have scored between 45 and 89?

d) Approximately how many students scored more than 76?

e) What is the median mark for this exam?

6. Ben has a final overall Grade 12 average of 87%. The college he wants to attend will not consider any applicant with a percentile rank below 82. Can Ben be sure the college will consider his application? Explain.

7. Calculate the 20% trimmed mean (from each end) for the values 4, 90, 43, 54, 48.

8. Chad is applying to a Mathematics Program at the University of Waterloo. He earned grades of 85, 95, 79, 80 and 50 in the subjects Mathematics, Statistics, Physics, Biology and English respectively. The University uses a weighted mean to determine his qualification grade. The weights for each subject are 5, 4, 3, 2, and 1 respectively for the above mentioned grades. Find Chad's weighted average for admission to the Mathematics department.