



Math 118 Assessment

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Mathematics Department

Spring 2019



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Math 118 – General Education Mathematics

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- This course is designed to fulfill general education requirements.
- Spring 2017 was the first semester in which we offer Math 118 in all three formats: face-to-face, hybrid and online.
- At our college, this course is mainly taught by part time faculty.
- It is the only college level course for which the instructor selects 4 out of 12 topics to be taught.



Math 118 Assessment Tool

Spring 2017 – Fall 2017 – Spring 2018 – Fall 2018

- SLO assessed: “Interpret and draw inferences from mathematical models such as formulas, graphs, tables, and schematics.”
- Spring 2017, Math 118 Pilot assessment was created from *Quantitative Reasoning Test*, 2017 Madison Assessment LLC.
- Fall 2017, the pilot assessment was expanded into two parts: a pre-test and a post-test.
- Math 118 assessment tool was revised and improved every semester.



Problem 1

Interpret and draw inferences from a formula.

1. Use the formula below that expresses the relationship between temperature in Celsius degrees, C, and Fahrenheit degrees, F, to answer the question below.

$$C = \frac{5}{9}(F - 32)$$

Water boils at 212°F. What is this temperature in Celsius degrees?

- a) 100°
- b) 85.78°
- c) 32°

Fall 2017 Modification

One of the highest temperature ever recorded in Chicago was 104°F. What is this temperature in Celsius degrees?

- a) 40°C
- b) 25.78°C
- c) 219.2°C



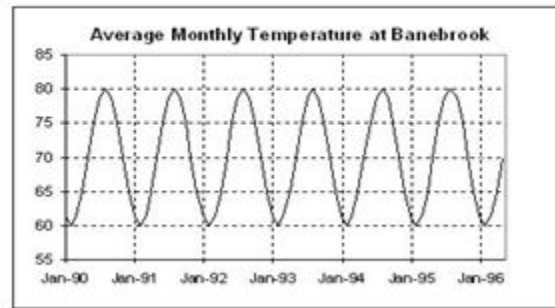
Problem 3

Interpret and draw inferences from graphs.

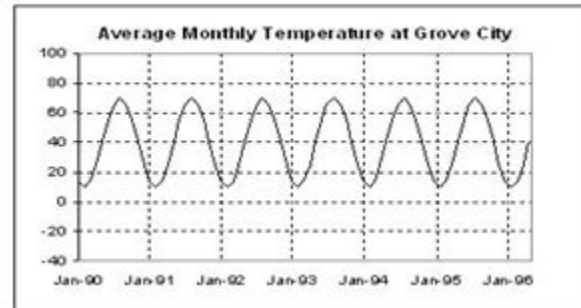
3. Regarding the two graphical displays given below, which of the following statements is correct?

- a) Banebrook (Graph 1) and Grove City (Graph 2) temperatures exhibit linear behavior through the year.**
- b) Banebrook (Graph 1) has the largest changes in temperature than Grove City (Graph 2) through the year.**
- c) Neither of the above.**

Graph 1



Graph 2



Question 3

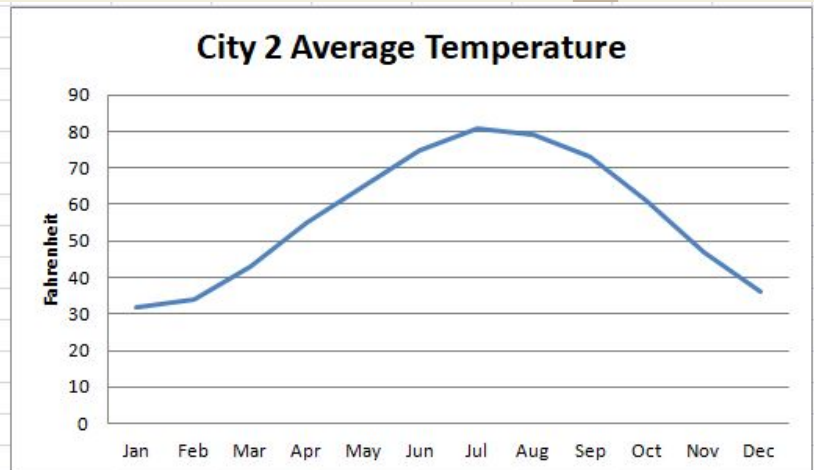
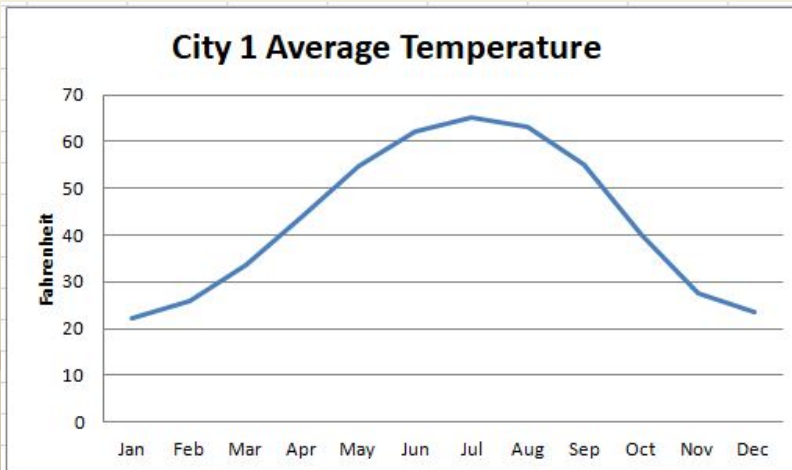


Interpret and draw inferences from graphs.

Spring 2018 Modification

3) Regarding the two graphical displays given below, which of the following statements is correct?

- a) City 1 and City 2 average temperatures exhibit linear behavior through the year.**
- b) City 1 has larger change in temperature from winter to summer than City 2 through the year.**
- c) Neither of the above.**



Problem 2



Interpret and draw inferences from a table.

2. Study the table below and answer the following 3 questions.

Table 5. Reasons for Retirement by Age at Retirement			
Reason for retirement	Age at Retirement		
	Under 62	Between 62-64	65 or older
Age	10.5	21.6	64.6
Ready to retire	10.5	50	14.6
Health problems	26.3	11.9	8.3
Plant closed	10.5	1.5	-
Benefits	10.5	3	-
Make way for younger workers	2.6	1.5	6.0
Bad work conditions/industry uncertainty	5.3	4.5	-
Family concerns	7.9	-	2.9
Enjoy life	7.9	1.5	2.1
Other	7.9	4.5	2.1
	100%	100%	100%
n =	76	66	48

Fall 2018 Modification

Table 5. Reasons for Retirement by Age at Retirement			
Reason for retirement	Age at Retirement		
	Under 62	Between 62-64	65 or older
Age	10.5%	21.6%	64.6%
Ready to retire	10.5%	50%	14.6%
Health problems	26.3%	11.9%	8.3%
Plant closed	10.5%	1.5%	-
Benefits	10.5%	3%	-
Make way for younger workers	2.6%	1.5%	6%
Bad work conditions/industry uncertainty	5.3%	4.5%	-
Family concerns	7.9%	-	2.9%
Enjoy life	7.9%	1.5%	2.1%
Other	8%	4.5%	1.5%
Total Percentage	100%	100%	100%
n=	76	66	48

Problem 2



Interpret and draw inferences from a table.

2A. What is the total number of surveyed retirees on which Table 5 is based?

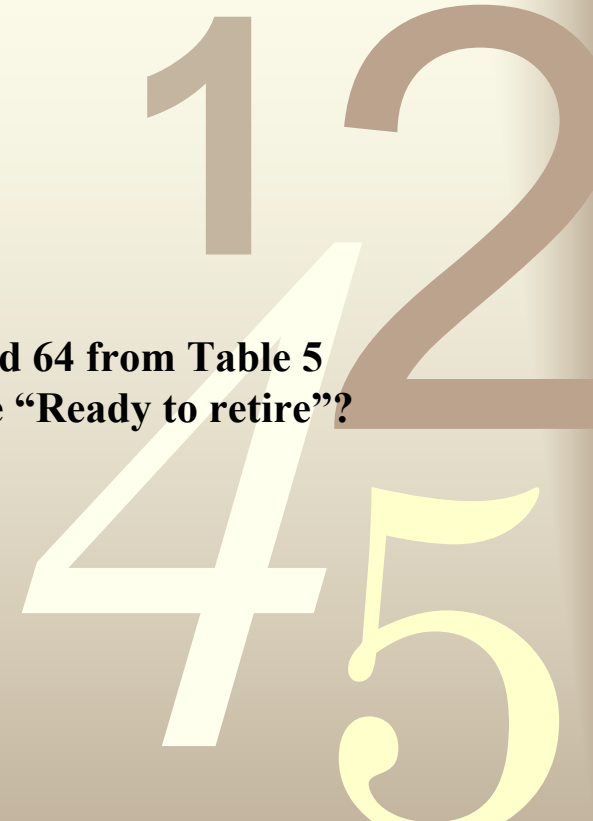
- a) 76
- b) 200
- c) 190
- d) 100

2B. For the surveyed retirees under age 62 from Table 5, what was the least mentioned reason for retirement?

- a) Family concerns
- b) Benefits
- c) Health problems
- d) Make way for younger workers

2C. How many of the surveyed retirees who were between 62 and 64 from Table 5 reported that their reason for retirement was that they were “Ready to retire”?

- a) 10.5
- b) 33
- c) 50
- d) 66



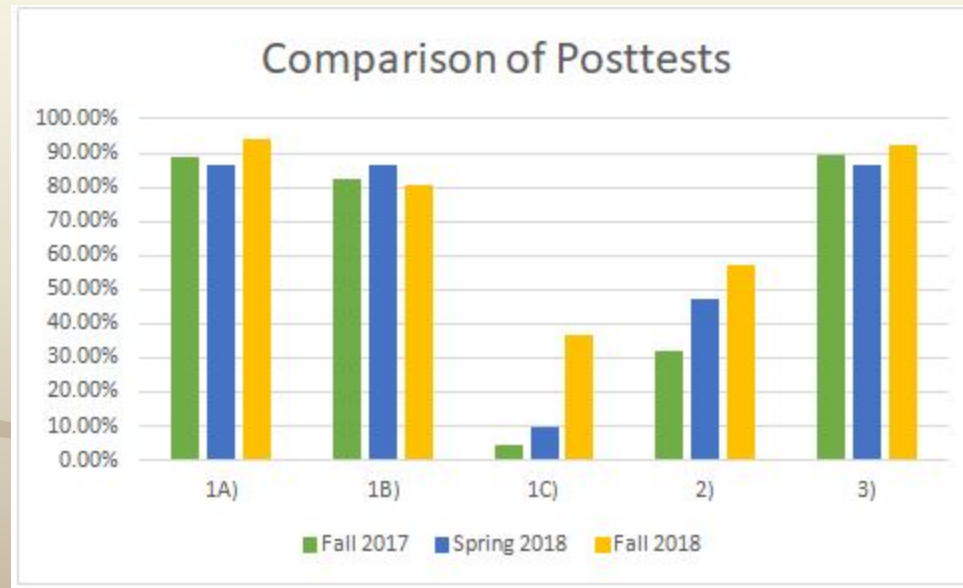


Math 118 Assessment Data Analysis

Visual Comparison of All Students Who Took Post-tests (Fall 2017, Spring 2018, and Fall 2018)

Percentage of Correct Responses

Question Posttest/Pretest	Fall 2017	Spring 2018	Fall 2018
1A)=2B)	88.89%	86.39%	94.12%
1B)=2A)	82.35%	86.39%	80.88%
1C)=2C)	4.58%	9.52%	36.76%
2)=3)	32.03%	46.94%	57.35%
3)=1)	89.54%	86.39%	92.65%
TOTAL:	100.00%	100.00%	100.00%





Math 118 Assessment

Success Factors and Recommendations

- A large number of responses was collected.
- The extent of faculty involvement in the assessment process was substantial.
- Students struggled with drawing information from graphs and interpreting percentages from quantities presented in a table.
- There should be more emphasis on connecting tables and graphs to practical situations in the students' experiences students in real life.
- The concept of misleading graphs and percentages should be exemplified and discussed in every course, regardless of the discipline or subject.



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Thank you!

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