Quantitative Skills & Reasoning - Math 1001



Dr. Bob Brown, Jr. Dean Emeritus Professor Emeritus East Georgia State College Zoom Video Conference 9-12-2019

- 1. Test 1 Data
- 2. Quick Recap of how to keep up
- 3. Sampling Clarification
- 4. Emphasis on Accurate/Careful Calculations
- 5. Preview for Next Week

Qua	ntitativ Te	ve Skills est 1 Gr	s & Reasoning ades	Sample size: 31 Median: 78 Minimum: 17	95-
17	70	95		Maximum: 100 First quartile: 63	90- 85-
36	70	95		Third quartile: 95 Interquartile Range: 32	80-
38	75	100		Outliers: none	75-
40	77	100		DEG	70-
45	78	100	1: <u>n=31</u>		60-
52	80	100	3↓Sx=22	.84140035	55-
57	83	100	r	MEG	50-
63	85	100	<u>1-Van II</u>	51	45-
64	85	100	8:01=63		35-
65.5	90		94Hed=78	5	30-
65.5	90		1-Varia	51	25-
			A:Q3=95	100	15-

How to Keep Up

- **1.** Check Email Ever Day Repeated in D2L
- 2. Do homework on time, do practice test also, ask questions
- 3. Run Your Course from

http://faculty.ega.edu/facweb/bbrown/Quantitative%20Reasoning.htm and http://faculty.ega.edu/facweb/bbrown/Math1001-Daily.htm

- 4. Sampling Clarification
- 5. Emphasis on Accurate/Careful Calculations
- 6. Preview for Next Week

Stratified sampling

In stratified sampling, a population is divided into a number of subgroups (or strata). Random samples are then taken from each subgroup with sample sizes proportional to the size of the subgroup in the population.

Cluster sampling

In cluster sampling, the population is divided into subgroups (clusters), and a set of subgroups are selected to be in the sample

In **stratified sampling**, the **sampling** is done on elements within each stratum. In **stratified sampling**, a random **sample** is drawn from each of the strata, whereas in **cluster sampling** only the selected **clusters** are **sampled**. A common motivation of **cluster sampling** is to reduce costs by increasing **sampling** efficiency.







of Trees in a Forest	Plant Growth in Soils with Different pH Values			
Average Radius (cm)	Plant Group	pH of Soil	Average Plant Growth (cm)	
2.2	1	6.0	25.4	
2.6	2	6.2	33.0	
	3	6.4	50.8	
	4	6.6	53.3	
	5	6.8	53.3	
	6	7.0	30.5	
4.4	7	7.2	22.9	
	Average Radius (cm) 2.2 2.6 4.4	A Trees in a Forest Plant with D (m) 2.2 2.6 3 4 4.4 7	Average Radius (cm) Plant Growth with Different pl Group Plant get with Different pl Group Plant get with Different pl Soli 2.2 1 6.0 2 6.2 3 6.4 4 6.6 6 7.0 6.8 6 7.0 7.7 7.2 7.2 7.7 7.2 <	

Data Tables and Graphs - Science: Physics physicsfun101.weebly.com





Ozone Concentration - LA County	50	Г
Ozone Concentration - EA County	. 40	-
	MQ 30	-
	20	21
	10	-
	.0	Ja
		1
59 87 94 155 155 226 248 270 275 300 375 725		1
Elevation		1

Creating a graph from a table-Help ... desktop.arcgis.com

Graph of Ozone Concentr

0.15

0.1

Graph of



Interpreting Data from Tables and Gr... studylib.net



JpGraph - Most powerful PHP-drive... jpgraph.net



Graphs - INGL 4255: Professional Editing ingl4255.wordpress.com



Charts, Graphs and Tables



Charts, Graphs and Tables slideshare.net



Figures and Charts - The Writing Center writingcenter.unc.edu

Kind of flower	Number of flowers	
Rose	1	
Tulip	5	
Lily	5	
Orchid	4	
Forget-me-not	9	
Total	24	

Number of flowers Kind of flower Total Sheryl Meryl Rose 3 4 1 Tulip 5 0 5 Lily 4 9 Orchid 4 8 Forget-me-not 15 24 50 Total 24 26

Table and Bar Graphs - Home Campus my.homecampus.com.sg



Vocabulary Drill - T. Charts, Tables ... tutor_me.tripod.com









Standard Deviation

The **standard deviation** is a measure of variation based on measuring how far each data value deviates, or is different, from the mean.

A few important characteristics:

- Standard deviation is always positive. Standard deviation will be zero if all the data values are equal, and will get larger as the data spreads out.
- Standard deviation has the same units as the original data.
- Standard deviation, like the mean, can be highly influenced by outliers.

Standard Deviation (cont.)

standard deviation = $\sqrt{\frac{\text{sum of (deviations from the mean)}^2}{\text{total number of data values }-1}}$

Standard deviation can be written symbolically using the following formula

$$s = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n - 1}}$$

s = standard deviation $x_i = individual data value$ $\overline{x} = mean$ n = total number of data values $\sum = summation or sum of$

For the following dataset of contract offers, find the mean, median, mode, range, and standard deviation:

\$50,000 \$80,000 **§90,000** \$100,000 \$10,000,000 Mean = \$2,064,000 $(50000 - 2064000)^2 = 4.056196 X 10^{12}$ $(80000 - 2064000)^2 = 3.936256 X 10^{12}$ $(90000 - 2064000)^2 = 3.896676 X 10^{12}$ $(1000000 - 2064000)^2 = 3.857296 X 10^{12}$ $(1000000 - 2064000)^2 = 6.2980096 X 10^{13}$ Sum =7.872652 X 10¹³ Sum/4 = 1.968163 X 10^{13} $S_x = \sqrt{19.68163 X 10^{12}} = 4,436,398.31$

