


Student: Stivale Saavedra
Date: 9/8/15
Time: 4:05 PM

Instructor: Derek Blythe
Course: MAT-240-X6099-15EW6
Book: Southern New Hampshire
University: Math130/Math240

Assignment: 8-2 MyStatLab: Module
Eight Problem Set

13.1.17-T. A stock analyst wondered whether the mean rate of return of financial, energy, and utility stocks differed over the past 5 years. He obtained a simple random sample of eight companies from each of the three sectors and obtained the 5-year rates of return shown in the accompanying table (in percent). Complete parts (a) through (d) below.

 Click the icon to view the data table.

(a) State the null and alternative hypotheses. Choose the correct answer below.

- A. $H_0: \mu_{\text{financial}} = \mu_{\text{energy}} = \mu_{\text{utilities}}$ and $H_1: \mu_{\text{financial}} < \mu_{\text{energy}} < \mu_{\text{utilities}}$
- B. $H_0: \mu_{\text{financial}} = \mu_{\text{energy}} = \mu_{\text{utilities}}$ and H_1 : at least one of the means is different
- C. $H_0: \mu_{\text{financial}} = \mu_{\text{energy}}$ and H_1 : the means are different
- D. H_0 : at least one of the means is different and $H_1: \mu_{\text{financial}} = \mu_{\text{energy}} = \mu_{\text{utilities}}$

(b) Normal probability plots indicate that the sample data come from normal populations. Are the requirements to use the one-way ANOVA procedure satisfied?

- A. Yes, because there are $k = 3$ simple random samples, one from each of k populations, the k samples are independent of each other, and the populations are normally distributed and have different variances.
- B. No, because the largest sample standard deviation is more than twice the smallest sample standard deviation.
- C. Yes, because there are $k = 3$ simple random samples, one from each of k populations, the k samples are independent of each other, and the populations are normally distributed and have the same variance.
- D. No, because there are $k = 3$ simple random samples, one from each of k populations, the k samples are independent of each other, and the populations are normally distributed and have the same variance.

(c) Are the mean rates of return different at the $\alpha = 0.05$ level of significance?

Use technology to find the F-test statistic for this data set.

$F_0 = \square$ (Round to two decimal places as needed.)

Determine the P-value and state the appropriate conclusion below.

Since the P-value is \square , there

is
is not

 enough evidence to reject the null hypothesis. Thus,

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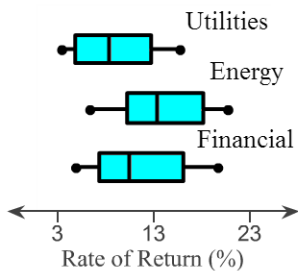
(cont.)

we conclude that the mean rates of return are different at the $\alpha = 0.05$ level of significance.

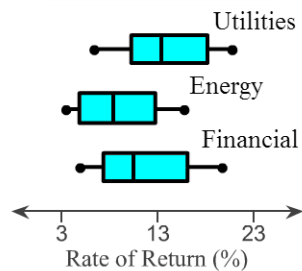
(Round to three decimal places as needed.)

(d) Draw boxplots of the three sectors to support the results obtained in part (c). Choose the correct graph below.

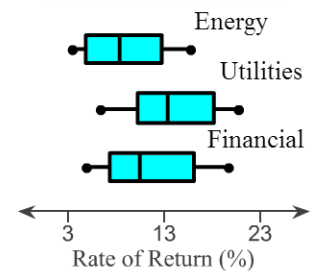
A.



B.



C.



Rates of Return



Financial	Energy	Utilities
10.73	12.89	11.98
15.05	13.96	5.76
17.01	6.43	13.67
5.03	11.19	9.90
19.59	18.93	3.95
8.16	20.73	3.44
10.45	9.60	7.11
6.75	17.40	15.70