

Math 80 HW#6
Due During the Final Exam

1. Do as indicated

The FDA regulates that fish that is consumed is allowed to contain 1.0 mg/kg of mercury. In Florida, bass fish were collected in 53 different lakes to measure the amount of mercury in the fish. The data for the average amount of mercury in each lake is in table #7.3.5 ("Multi-disciplinary niser activity," 2013). Do the data provide enough evidence to show that the fish in Florida lakes has more mercury than the allowable amount? Test at the 10% level.

Table #7.3.5: Average Mercury Levels (mg/kg) in Fish

1.23	1.33	0.04	0.44	1.20	0.27
0.48	0.19	0.83	0.81	0.71	0.5
0.49	1.16	0.05	0.15	0.19	0.77
1.08	0.98	0.63	0.56	0.41	0.73
0.34	0.59	0.34	0.84	0.50	0.34
0.28	0.34	0.87	0.56	0.17	0.18
0.19	0.04	0.49	1.10	0.16	0.10
0.48	0.21	0.86	0.52	0.65	0.27
0.94	0.40	0.43	0.25	0.27	

2. Do as indicated

In November of 1997, Australians were asked if they thought unemployment would increase. At that time 284 out of 631 said that they thought unemployment would increase ("Morgan gallup poll," 2013). Estimate the proportion of Australians in November 1997 who believed unemployment would increase using a 95% confidence interval?

3. Do as indicated

In Florida, bass fish were collected in 53 different lakes to measure the amount of mercury in the fish. The data for the average amount of mercury in each lake is in table #8.3.6 ("Multi-disciplinary niser activity," 2013). Compute a 90% confidence interval for the mean amount of mercury in fish in Florida lakes.

Table #8.3.6: Average Mercury Levels (mg/kg) in Fish

1.23	1.33	0.04	0.44	1.20	0.27
0.48	0.19	0.83	0.81	0.71	0.5
0.49	1.16	0.05	0.15	0.19	0.77
1.08	0.98	0.63	0.56	0.41	0.73
0.34	0.59	0.34	0.84	0.50	0.34
0.28	0.34	0.87	0.56	0.17	0.18
0.19	0.04	0.49	1.10	0.16	0.10
0.48	0.21	0.86	0.52	0.65	0.27
0.94	0.40	0.43	0.25	0.27	

4. Do as indicated

Table #8.3.8 contains pulse rates after running for 1 minute, collected from females who drink alcohol ("Pulse rates before," 2013). Find a 95% confidence interval for the mean pulse rate after exercise of women who do drink alcohol.

Table #8.3.8: Pulse Rates (beats per minute) of Woman Who Use Alcohol

176	150	150	115	129	160
120	125	89	132	120	120
68	87	88	72	77	84
92	80	60	67	59	64
88	74	68			

5. Do as indicated

When an anthropologist finds skeletal remains, they need to figure out the height of the person. The height of a person (in cm) and the length of their metacarpal bone 1 (in cm) were collected and are in table #10.1.5 ("Prediction of height," 2013). Create a scatter plot and find a regression equation between the height of a person and the length of their metacarpal. Then use the regression equation to find the height of a person for a metacarpal length of 44 cm and for a metacarpal length of 55 cm. Which height that you calculated do you think is closer to the true height of the person? Why?

Table #10.1.5: Data of Metacarpal versus Height

Length of Metacarpal (cm)	Height of Person (cm)
45	171
51	178
39	157
41	163
48	172
49	183
46	173
43	175
47	173

6. Do as indicated

When an anthropologist finds skeletal remains, they need to figure out the height of the person. The height of a person (in cm) and the length of their metacarpal bone 1 (in cm) were collected and are in table #10.1.5 ("Prediction of height," 2013). Find the correlation coefficient and coefficient of determination and then interpret both.

Table #10.1.5: Data of Metacarpal versus Height

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45	171
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39	157
41	163
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