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Math 80

20 July 2020

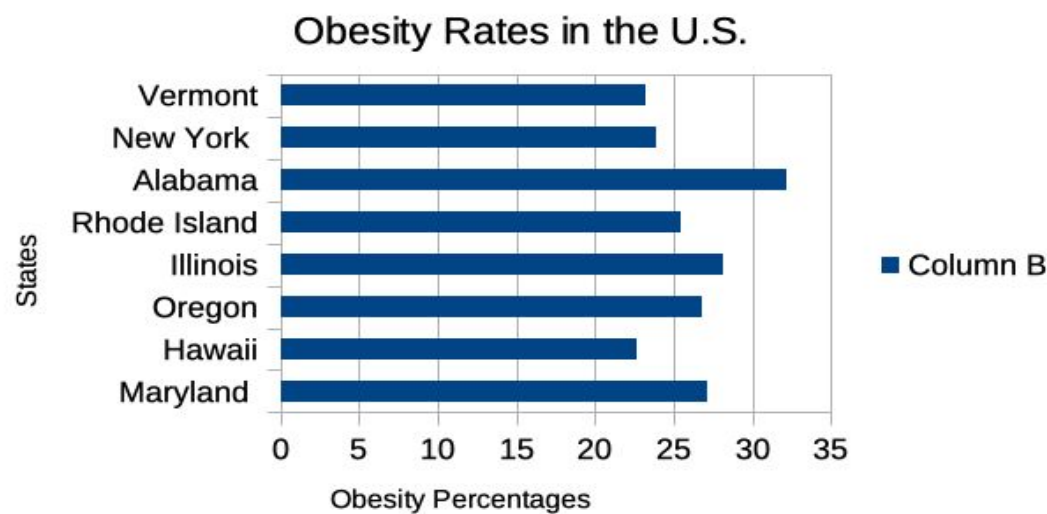
Homework #2

74. A.

Stem	Leaf
5	1
6	
7	6,7,8,9
8	1,2,4,6
9	9

B. The outliers observed in these exam scores are 51 and 99. Most scores on the exam were between 70 and 80 percent. The outliers score is not anywhere near 70 and 80 percent.

75. A



76. A.

Publisher A Relative Frequencies

# of books	Freq.	Rel. Freq.
0	10	0.147058823529
		412
1	12	0.176470588235
		294

2	16	0.235294117647 059
3	12	0.176470588235 294
4	8	0.117647058823 529
5	6	0.088235294117 647
6	2	0.029411764705 882
8	2	0.029411764705 882

Publisher B Relative Frequencies

# of books	Freq.	Rel. Freq.
0	18	0.151260504201 681
1	24	0.201680672268 908
2	24	0.201680672268

		908
3	22	0.184873949579
		832
4	15	0.126050420168
		067
5	10	0.084033613445
		378
7	5	0.042016806722
		689
9	1	0.008403361344
		538

Publisher C Relative Frequencies

# of books	Freq.	Rel. Freq.
0-1	20	0.285714285714
		286
2-3	35	0.5
4-5	12	0.171428571428
		571

6-7 2 0.028571428571

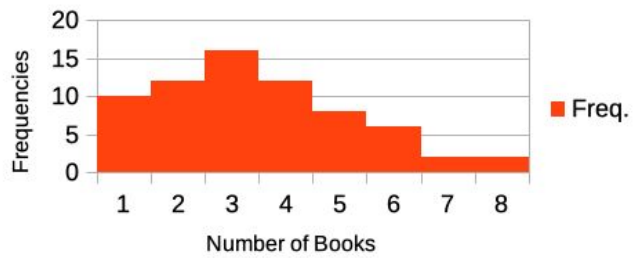
429

8-9 1 0.014285714285

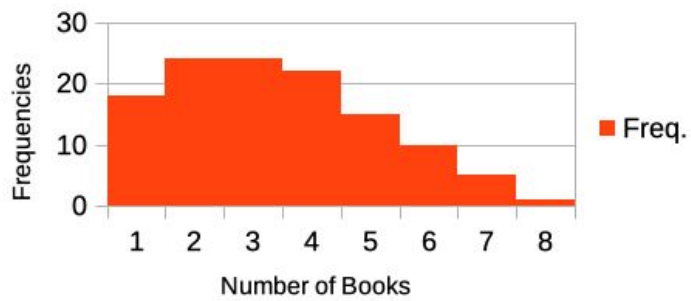
714

B.

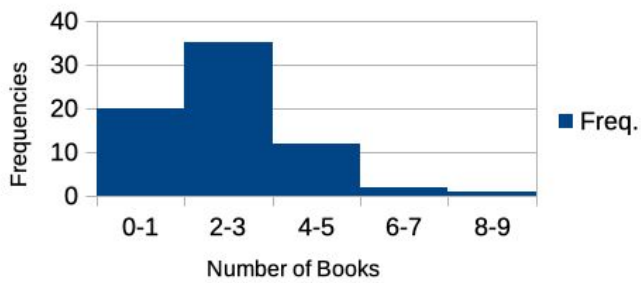
Histogram of Frequencies for Publisher A



Histogram of Frequencies for Publisher B



Histogram of Frequencies for Publisher C



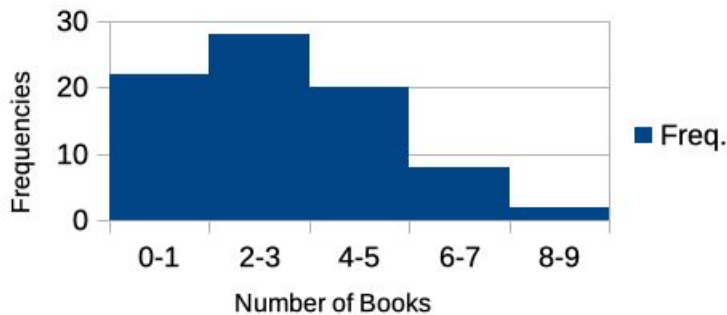
C. Publisher B has frequencies that reach up to 24 while Publisher A highest frequency is 16.

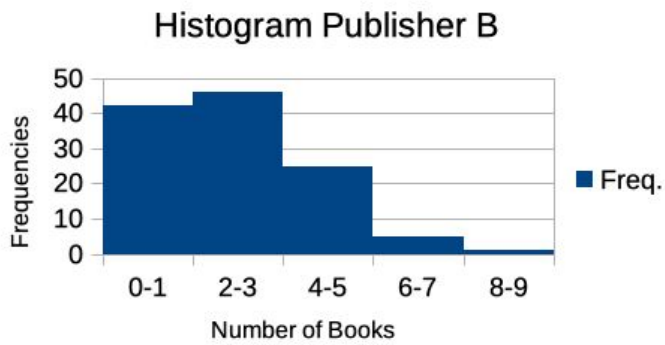
Publisher B maintains higher levels of frequencies while Publisher A's frequencies taper off much faster.

D. No the graph for Publisher C would be different from the other two because it groups its bins with a width of two. Publishers A and B only use a bin width of one.

E.

Histogram Publisher A

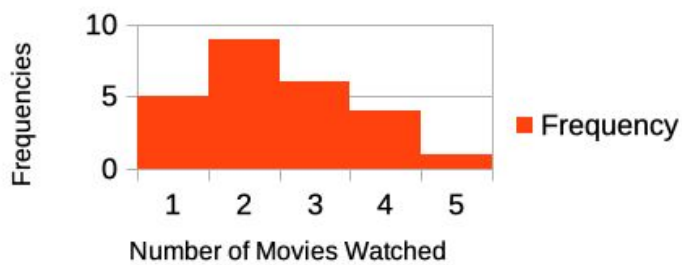




F. The set of bins for Publishers A and B appear more similar to Publisher C. Their skewness to the right appears to be more prevalent in each of the graphs with bin widths of two.

78. A.

Histogram for Number of Movies Watched



B.

# of movies	Frequency	Rel. Freq.	Cum. Freq.
0	5	0.2	0.2
1	9	0.36	0.56
2	6	0.24	0.8

3	4	0.16	0.96
4	1	0.04	1

79. $45/111 = .405$ - 41%

C. 41%

80. D

83. A. $0.02 + 0.09 + 0.19 + 0.26 + 0.18 + 0.17 + 0.02 + 0.01 = 0.94$, $1 - 0.94 = 0.06$

0.06 people are not sure in this survey.

B. $0.19 + 0.26 + 0.18 = 0.63$

63% of people believe the middle class is between 25,000 to 50,000.

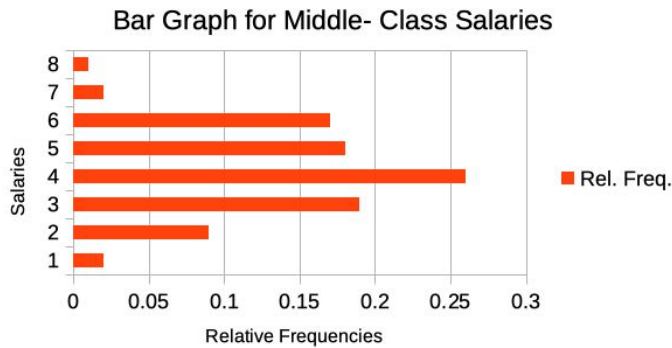
C.



The salaries kept the same bin width.

D. The 40th percentile is 0.076 and the 80th percentile is 0.186.

E.



84. A. Q4 has the smallest spread of data being 1.

B. Q2 has the largest spread of data being 8.

C. IQR is $12-2=10$

D. There is less data in 5-10 because 10-13 holds 50% of the data

E. ii 2-4 has less than 25% of the data which is why it is the smallest of the options

88. i. The statement is false because Data 1 and 2 have the same amount of total values, 7. The differing values in the quartiles for Data 1 and 2 is what makes Data 1 appear larger.

ii. The statement is false because they can have the same repeating numbers amongst the values of data.

iii. The statement is false because both Data 1 and 2 have the same amount of values, 7. Each box plot has the same amount of data values above and below 4 on the number line.

B. Data 2 is most likely to have the outlier of 7 because it has a larger distance from the third quartile to the maximum value of 7 compared to Data 1. This causes it to be skewed to the right.

92. $1328.65/50=26.57$

26.57% is the mean of children underweight

93. A. The median age increasing indicates that the average age in the population has risen.

B. One reason for this is that less babies are being created in 1991 compared to 1980. The second reason is people are living longer due to an advancement in technology.

C. There can be less children in 1991 compared to 1980 due to the increase in median age. An increase in children would cause a decrease in the median age which is not observed in 1991.

94. It is 6 years because the upper half of the sample, 11 years, would have FTES students that are at least equal to or greater than 1014 six times.

95. A. at or below: $Q_3 - 1,447.5$ FTES

B. at or above: $Q_1 - 528.5$ FTES

96. The population standard deviation is 474 FTES.

97. It is 50% from 528.5 FTES to 1,477.5 FTES. This is because Q_1 , 528.5 FTES, is 25% of the data and Q_3 , 1,447.5, is 75% of the data. So the distance in between is 50%.

98. $IQR - 1,447.5 - 528.5 = 919$

$IQR = 919$ FTES

99. $14/474 = 0.029$

The mean is 0.029 standard deviations away from the median.