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## CH2 - Frequency Distributions for Organizing and Summarizing Data

In class activities

Old Faithful Listed below are sorted duration times (seconds) of eruptions of the Old Faithful geyser in Yellowstone National Park. Use these times to construct a frequency distribution. Use 5, 10, 20 classes find three frequency distributions and compare your results.



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CH2-Frequency Distributions for Organizing and Summarizing Data  
In class activities Old Faithful  
Listed below are sorted duration times (seconds) of eruptions of the Old Faithful geyser in Yellowstone...

1 of 10

make a histogram, frequency polygon, cumulative frequency polygon and stem & leaf. 11. Old Faithful Listed below are sorted duration times (seconds) of eruptions of the Old Faithful...

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## Question 1 of 10

## CH2 - Frequency Distributions for Organizing and Summarizing Data

In class activities

Old Faithful Listed below are sorted duration times (seconds) of eruptions of the Old Faithful geyser in Yellowstone National Park. Use these times to construct a frequency distribution. Use 5, 10, 20 classes find three frequency distributions and compare your results.

In following 4 tables, identify the class width, class midpoints, and class boundaries for the given frequency distribution. Also, identify the number of individuals included in the summary. Then compare the results of the Male vs Females

**CH2-Frequency Distributions for Organizing and Summarizing Data**

**In class activities**

Old Faithful Listed below are sorted duration times (seconds) of eruptions of the Old Faithful geyser in Yellowstone National Park. Use these times to construct a frequency distribution. Use 5, 10, 20 classes find three frequency distributions and compare your results.

125	203	205	221	225	229	233	233	235	236	236	237	238	238	239	240	240
240	240	241	241	242	242	242	243	243	244	245	245	245	245	246	246	246
248	248	249	249	250	251	252	253	253	255	255	256	257	258	262	264	

In following 4 tables, identify the class width, class midpoints, and class boundaries for the...

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The whiteboard displays four tables:

When Oscar was Won	Frequency
20-29	29
30-39	34
40-49	14
50-59	3
60-69	5
70-79	1
80-89	1

Blood Platelet Count of Males	Frequency
0-99	1
100-199	51
200-299	91
300-399	10
400-499	0
500-599	0
600-699	1

When Oscar Was Won	Frequency
20-29	1
30-39	28
40-49	36
50-59	15
60-69	6
70-79	1
80-89	0

Blood Platelet Count of Females	Frequency
0-99	0
100-199	25
200-299	92
300-399	28
400-499	0
500-599	2
600-699	0

**Solution**
 1st step
  All steps
  Answer only
**Step 1**

^

To construct a frequency distribution, we first need to determine the range of the data and then decide on the number of classes (intervals) for the distribution.

**Explanation:**

Range = maximum duration - minimum duration

$$\text{class width} = \frac{\text{range}}{\text{number of classes}}$$

1) using 5 classes:

$$\text{range} = 264 - 125 = 139$$

$$\text{class width} = \frac{139}{5} \approx 28$$

Starting Point: Round down the minimum value to the nearest multiple of the class width, which is 125.

classes	frequency
125-152	1
153-180	0
181-208	2
209-236	8
237-264	39
total	50

**Step 2**

^

2) using 10 classes:

**Explanation:**

$$\text{Range} = \text{maximum duration} - \text{minimum duration}$$

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$$\text{range} = 139$$

$$\text{class width} = 13.9 \approx 14$$

Starting Point: Round down the minimum value to the nearest multiple of the class width, which is 125.

frequency distribution:

classes	frequency
125-138	1
139-152	0
153-166	0
167-180	0
181-194	0
195-208	2
209-222	1
223-236	7
237-250	28
251-264	11
total	50

### Step 3 ^

3) using 20 classes-

**Explanation:**

Range = maximum duration - minimum duration

$$\text{class width} = \frac{\text{range}}{\text{number of classes}}$$

$$\text{range} = 139$$

$$\text{class width} = \frac{139}{20} \approx 7$$

frequency distribution:

classes	frequency
125-131	1
132-138	0
139-145	0
146-151	0
152-158	0
159-165	0
166-171	0
172-178	0
179-185	0
186-191	0
192-198	0

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212-218	0
219-225	2
226-231	1
232-238	8
239-245	17
246-251	9
252-258	8
259-265	2
total	50

**comparison of results:**

let's compare the results obtained from the three frequency distributions using 5, 10, and 20 classes:

- The choice of the number of classes significantly influences the distribution.
- Using 5 classes provides a broader view of the data, showing the general distribution of eruption times.
- Using 10 classes offers more detail, indicating smaller variations within the data.
- Using 20 classes provides even more detail, potentially highlighting specific values or intervals where eruptions are more concentrated.

**Answer**

Certainly! Here's a summary of the three frequency distributions with 5, 10, and 20 classes:

**5 Classes:**

- Class Intervals: 125-152, 153-180, 181-208, 209-236, 237-264
- Provides a general overview of the distribution.

**10 Classes:**

- Class Intervals: 125-138, 139-152, 153-166, ..., 251-264
- Offers more detail, showing smaller variations within the data.

**20 Classes:**

- Class Intervals: 125-131, 132-138, ..., 259-265
- Frequencies: Varying, but generally low
- Provides detailed insight into specific values or intervals within the data.

**Comparison:**

- The number of classes chosen significantly impacts the level of detail in the distribution.
- Fewer classes (5) offer a broad overview.
- More classes (10, 20) provide increasing detail, potentially revealing nuances in the data.

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Was this solution helpful?



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**What would you like to do next?**

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