

Statistics

Lecture 5



Feb 19-8:47 AM

Consider the Stem Plot below:

```

1 | 8 8 9
2 | 0 1 4 5 8
3 | 0 2 5 5 5 7 8 9
4 | 2 3 5 6 6 8
5 | 0 2 4
  
```

→ Data must be Sorted

1) $n = 25$

2) $\text{Min.} = 18$

3) $\text{Max} = 54$

4) $\text{Range} = \text{Max} - \text{Min}$
 $= 54 - 18 = \boxed{36}$

5) $\text{Midrange} = \frac{\text{Max} + \text{Min}}{2} = \frac{54 + 18}{2}$
 $= \frac{72}{2} = \boxed{36}$

6) $\text{Mode} = 35$

7) Find class width if we wish to have a freq. table with

a) 4 classes

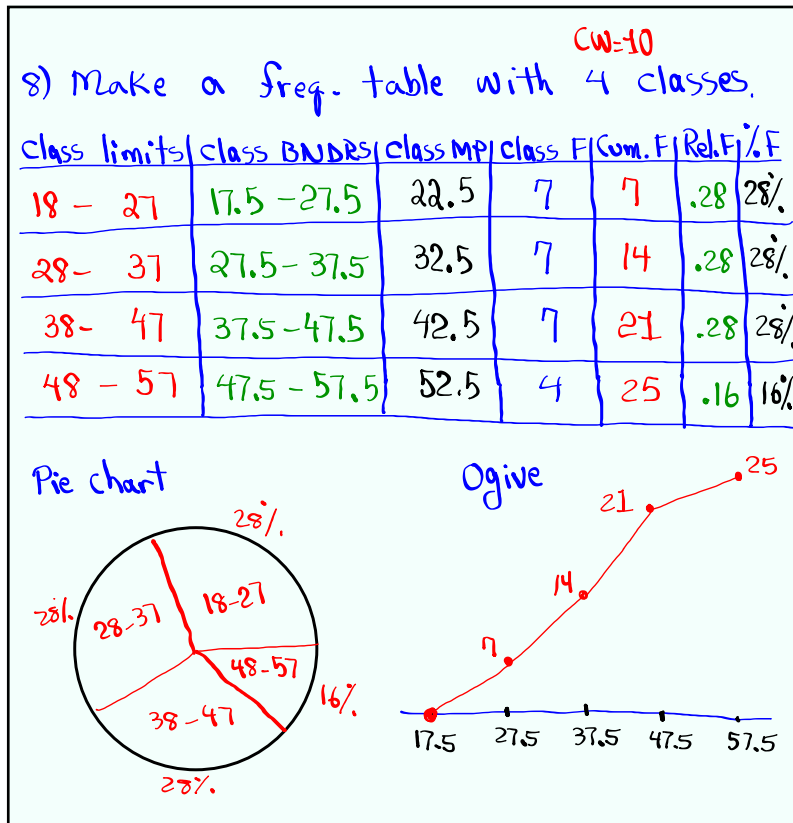
$$\frac{\text{Range}}{4} = \frac{36}{4} = 9 \quad \boxed{\text{CW} = 10}$$

b) 5 classes

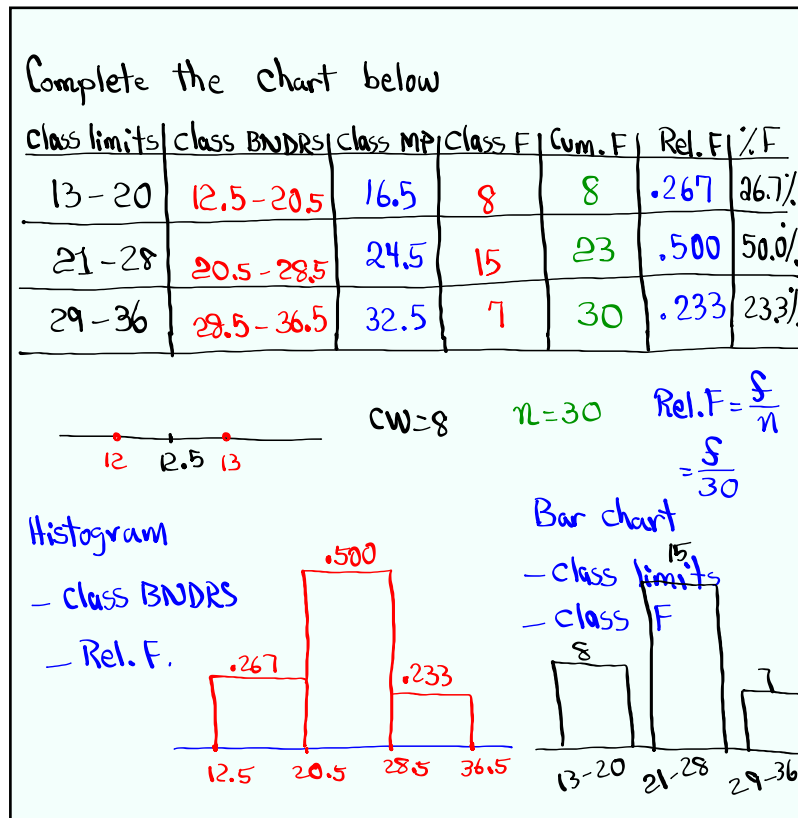
$$\frac{\text{Range}}{5} = \frac{36}{5} = 7.2$$

$\boxed{\text{CW} = 8}$

Sep 3-8:47 AM



Sep 3-8:58 AM



Sep 3-9:12 AM

Consider the Sample below

1 3 3 3 9

1) $n = 5$

2) Range = $9 - 1 = 8$

3) Midrange = $\frac{9+1}{2} = 5$

4) Mode = 3

5) $\sum x = 1 + 3 + 3 + 3 + 9 = \boxed{19}$
 ↑
 Summation

6) $\sum x^2 = 1^2 + 3^2 + 3^2 + 3^2 + 9^2 = \boxed{109}$

7) Compute $\frac{\sum x}{n} = \frac{19}{5} = \boxed{3.8}$

8) Compute $\frac{n \sum x^2 - (\sum x)^2}{n(n-1)} = \frac{5 \cdot 109 - 19^2}{5(5-1)}$
 $= \frac{184}{20} = \boxed{9.2}$

9) Find $\sqrt{\text{Last Ans.}}$, Round to 1-decimal

$\sqrt{9.2} \approx \boxed{3.0314} \approx \boxed{3.0}$

Sep 3-9:32 AM

Consider the Sample below

2 4 4 4 6 6 6 10

1) $n = 8$

2) Range = $10 - 2 = 8$

3) Midrange = $\frac{10+2}{2} = 6$

4) Mode = 4 & 6

5) $\sum x = 2 + 4 + 4 + 4 + 6 + 6 + 6 + 10 = \boxed{42}$

6) $\sum x^2 = 2^2 + 4^2 + 4^2 + 4^2 + 6^2 + 6^2 + 6^2 + 10^2 = \boxed{260}$

7) $\frac{\sum x}{n} = \frac{42}{8} = \boxed{5.25}$

8) $\frac{n \sum x^2 - (\sum x)^2}{n(n-1)}$
 $= \frac{8 \cdot 260 - 42^2}{8(8-1)} = \frac{316}{56}$
 $\approx \boxed{5.643}$

9) $\sqrt{\text{Last ans.}} = \sqrt{5.643} = 2.375$

Round to whole # $\approx \boxed{2}$

Sep 3-9:42 AM

A Sample has a min. 20 and a max 70

1) Range = $70 - 20$
 $= 50$

2) Midrange = $\frac{70+20}{2} = 45$

3) class width with 3 classes.

$\frac{\text{Range}}{3} = \frac{50}{3} = 16.6$ $\text{CW} = 17$

4) class width with 5 classes.

$\frac{\text{Range}}{5} = \frac{50}{5} = 10$ $\text{CW} = 11$

Sep 3-9:51 AM