

Statistics Lecture 12



Feb 19-8:47 AM

Consider the chart below

Class limits	Class MP	Class F
32 - 40	36	4
41 - 49	45	10
50 - 58	54	6

1) 3 classes
 2) $CW = 9$
 3) $n = \sum F = 20$

To find \bar{x} & s^2

Class MP \rightarrow L1
 Class F \rightarrow L2

$\bar{x} = 45.9$
 $S = S_x = 6.464$
 $n = 20$

find s^2 in reduced fraction
STAT \rightarrow **CALC**
1:1-Var Stats
 with Menu List:L1 } No Menu
 Freq List:L2 } L1,L2
Calculate **Enter**

VARS **5:Statistics** **3:Sx** **x²**
Math **1: \rightarrow Frac** **Enter**

$$\frac{3969}{95}$$

Sep 16-8:53 AM

Complete the chart below

Class BNDRS	class MP	class F	Cum. F
17.5 - 27.5	22.5	6	6
27.5 - 37.5	32.5	8	14
37.5 - 47.5	42.5	16	30
47.5 - 57.5	52.5	10	40

1) CW = 10
2) 4 classes
3) $n = 40$

Find \bar{x} & S

class MP \rightarrow L1 **STAT** \rightarrow **CALC**
class F \rightarrow L2 **1:1-VarStat**

$\bar{x} = 40$
 $S = Sx = 10.064$
 $n = 40$

Find S^2 in reduced fraction

VARS **5: Statistics** **3: Sx** **x^2**
MATH **1: \rightarrow frac** **Enter**

$$\frac{3950}{39}$$

Sep 16-9:06 AM

Consider the Sample below

38	25	18	40	52	Store L1
20	19	28	33	45	Sort L1
55	16	23	27	27	View L1
48	32	39	28	29	Make Stem Plot

Find \bar{x} & S .

$\bar{x} = 32.1$ $S = 11.447$ $n = 20$

Find 5-Number Summary

16, 24, 28.5, 39.5, 55

Find S^2 in reduced fraction.

$$S^2 = \frac{12449}{95}$$

Sep 16-9:18 AM

1	689
2	03577889
3	2389
4	058
5	25

Find P_{30}

$$L = \frac{30}{100} \cdot 20 = 6$$

$$P_{30} = \frac{6^{\text{th}} + 7^{\text{th}}}{2} = \frac{25 + 27}{2} = 26$$

30% | 70%
P₃₀ = 26

Find P_{82}

$$L = \frac{82}{100} \cdot 20 = 16.4 \quad L = 17$$

$$P_{82} = 17^{\text{th}} \text{ number} = 45$$

82% | 18%
P₈₂ = 45

Find k such that $P_k = 40$ below

$$k = \frac{B}{n} \cdot 100 = \frac{15}{20} \cdot 100 = 75$$

75% | 25%
40

Sep 16-9:29 AM

Consider the 5-Number Summary below

35 70 78 82 100

1) Box Plot

2) $IQR = Q_3 - Q_1 = 82 - 70 = 12$

3) Upper Fence = $Q_3 + 1.5(IQR) = 82 + 1.5(12) = 100$

4) Lower Fence = $Q_1 - 1.5(IQR) = 70 - 1.5(12) = 52$

5) Discuss outliers 35 - 52

Sep 16-9:35 AM

A data set has a mean of 78 and standard dev. of 8.

1) Find Z-Score for data element 60.

usual or unusual? Explain unusual

$$z = \frac{x - \bar{x}}{s} = \frac{60 - 78}{8} = \frac{-18}{8} = \boxed{-2.25} \quad z < -2$$

2) Find data element with Z-Score of 1.125.

$$z = \frac{x - \bar{x}}{s}$$

$$1.125 = \frac{x - 78}{8} \quad x - 78 = 8(1.125)$$

$$x = 78 + 9$$

Cross-multiply

$$\boxed{x = 87}$$

Sep 16-9:43 AM

Class QZ 4

Use the chart below to find

Class MP	Class F
13	5
25	10
37	15
49	8
61	2

$$1) \bar{x} = 34.6 \approx 35 \quad \left. \begin{array}{l} \text{whole} \\ \# \end{array} \right\}$$

$$2) s \approx 12.508 = 13$$

$$3) n = 40$$

$$4) s^2 = \frac{10656}{65} \quad \left. \begin{array}{l} \text{Reduced} \\ \text{Fraction} \end{array} \right\}$$

Sep 16-9:49 AM