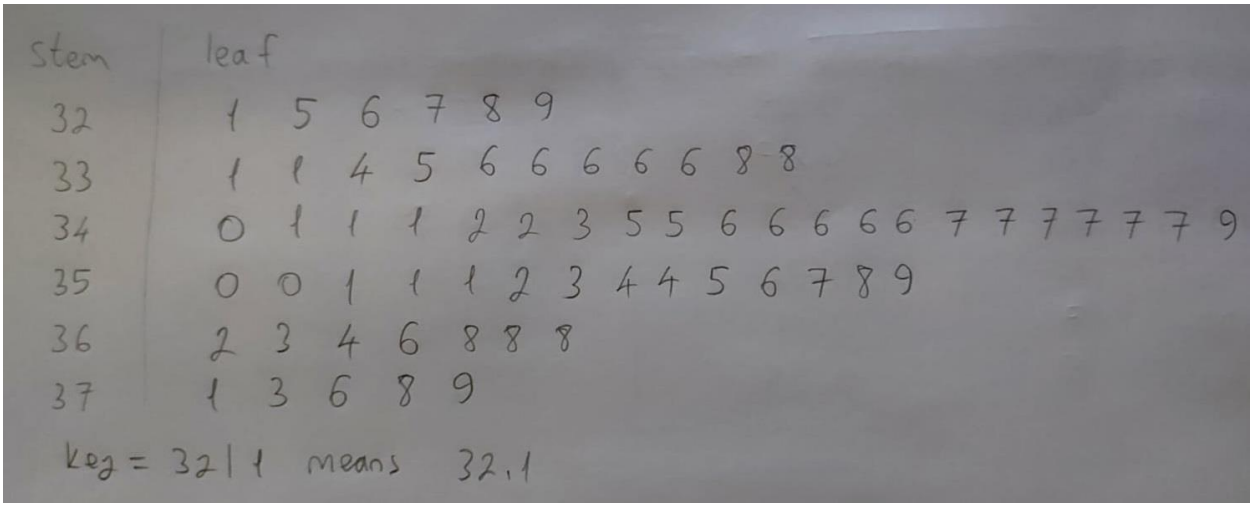
MUSTAFA CAN ÇALIŞKAN

150200097

MAT271E HW1

1)



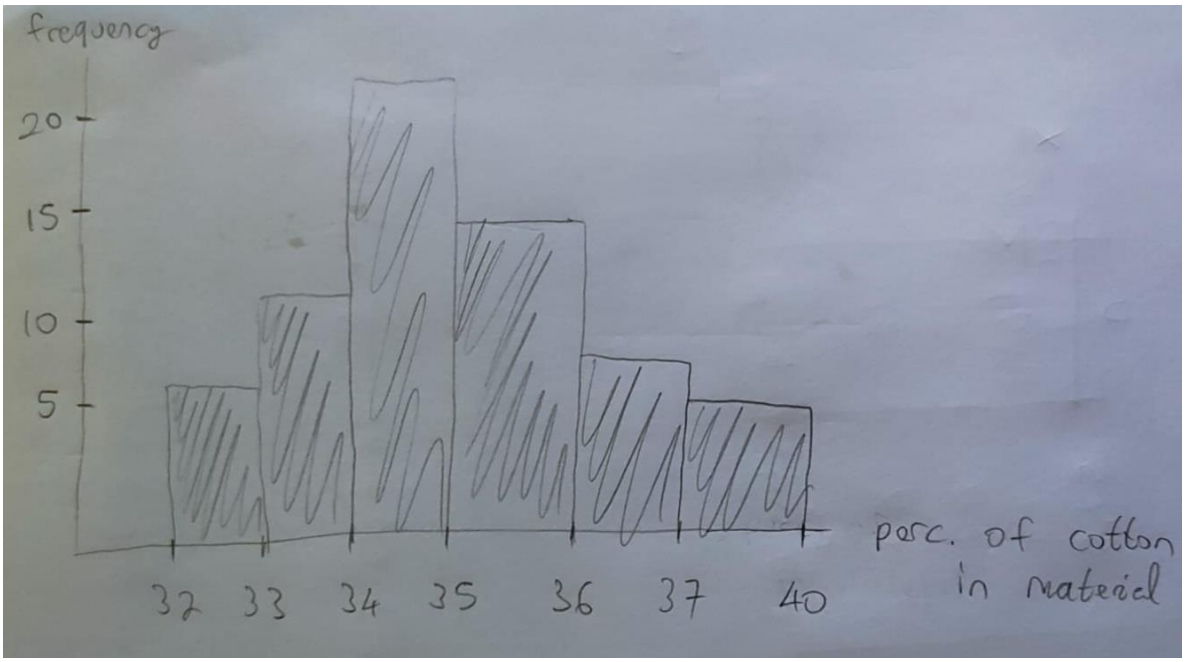
Stem	leaf
32	1 5 6 7 8 9
33	1 1 4 5 6 6 6 6 6 8 8
34	0 1 1 1 2 2 3 5 5 6 6 6 6 6 7 7 7 7 7 7 9
35	0 0 1 1 1 2 3 4 4 5 6 7 8 9
36	2 3 4 6 8 8 8
37	1 3 6 8 9

key = 32 | 1 means 32.1

2)

(2)

class interval	frequency	relative frequency	cumulative relative frequency
32 - under 33	6	0.09	0.09
33 - under 34	11	0.17	0.26
34 - under 35	21	0.33	0.59
35 - under 36	14	0.22	0.81
36 - under 37	7	0.11	0.92
37 - under 40	5	0.08	1



3)

43, 44, 44, 45, 45, 46, 46, 46, 47, 48, 48, 49, 49, 49, 49, 50, 50, 50, 50, 50, 51, 51, 51, 52, 52

(3)

a) sample mean $= \frac{\sum_{i=1}^{n} x_i}{n} = \frac{1155}{24} = 48.125$

sample median $= (x_{12} + x_{13})/2 = 49$

b) sample variance $= \frac{\sum_{i=1}^{n} (x_i - \text{mean})}{n-1} = \frac{166.625}{23} = 7.245$

sample standard dev. $= \sqrt{7.245} = 2.690$

c) $5^{th} = \frac{5}{100} \cdot 24 = 1.2 \rightarrow$ round up $\rightarrow$ 2. position $\downarrow$ 44

$95^{th} = \frac{95}{100} \cdot 24 = 22.8 \rightarrow$ round up $\rightarrow$ 23. position $\downarrow$ 52

4)

K1 =AVERAGE(A1:H3)

	A	B	C	D	E	F	G	H	I	J	K
1	43	47	51	48	52	50	46	49		Mean:	48.125
2	45	52	46	51	44	49	46	51		Median:	49
3	49	45	44	50	48	50	49	50		Variance:	7.244565
4										Std. Dev.:	2.691573
5										5th Percentile:	44
6										95th Percentile:	52
7											

K2 =MEDIAN(A1:H3)

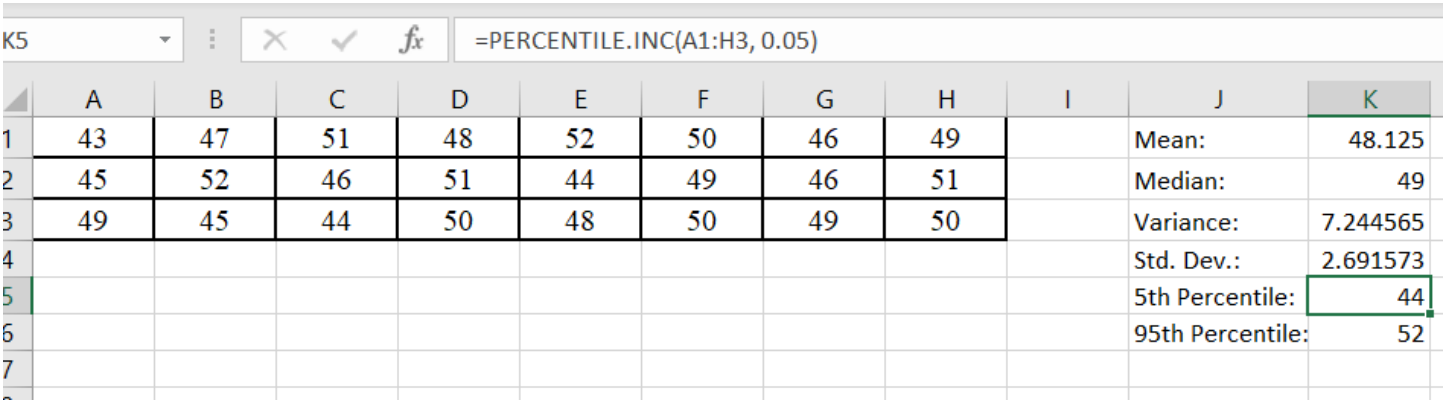
	A	B	C	D	E	F	G	H	I	J	K
1	43	47	51	48	52	50	46	49		Mean:	48.125
2	45	52	46	51	44	49	46	51		Median:	49
3	49	45	44	50	48	50	49	50		Variance:	7.244565
4										Std. Dev.:	2.691573
5										5th Percentile:	44
6										95th Percentile:	52
7											

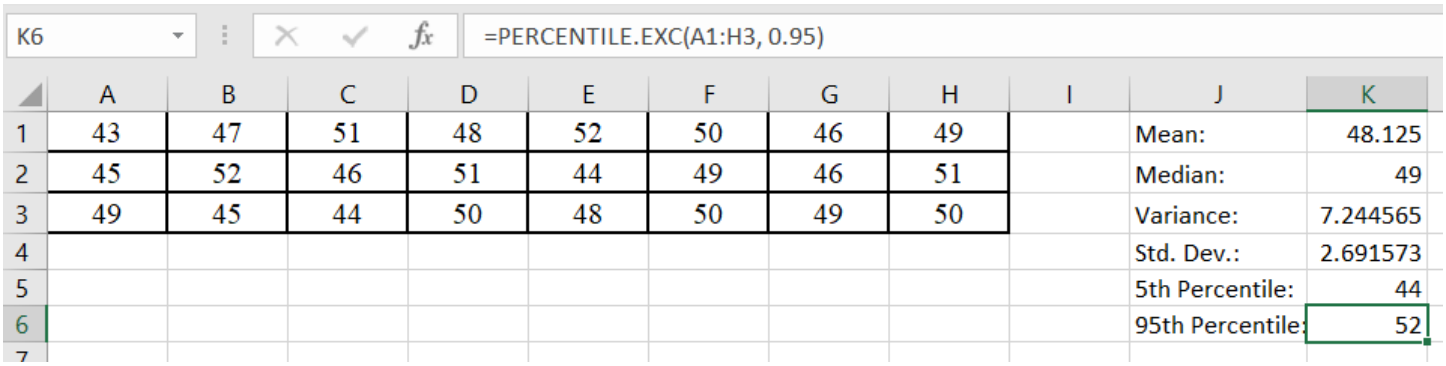
K3 =VAR.S(A1:H3)

	A	B	C	D	E	F	G	H	I	J	K
1	43	47	51	48	52	50	46	49		Mean:	48.125
2	45	52	46	51	44	49	46	51		Median:	49
3	49	45	44	50	48	50	49	50		Variance:	7.244565
4										Std. Dev.:	2.691573
5										5th Percentile:	44
6										95th Percentile:	52
7											

K4 =STDEV.S(A1:H3)

	A	B	C	D	E	F	G	H	I	J	K
1	43	47	51	48	52	50	46	49		Mean:	48.125
2	45	52	46	51	44	49	46	51		Median:	49
3	49	45	44	50	48	50	49	50		Variance:	7.244565
4										Std. Dev.:	2.691573
5										5th Percentile:	44
6										95th Percentile:	52
7											


K5
=PERCENTILE.INC(A1:H3, 0.05)
A B C D E F G H I J K
1 43 47 51 48 52 50 46 49 Mean: 48.125
2 45 52 46 51 44 49 46 51 Median: 49
3 49 45 44 50 48 50 49 50 Variance: 7.244565
4 Std. Dev.: 2.691573
5 5th Percentile: 44
6 95th Percentile: 52
7

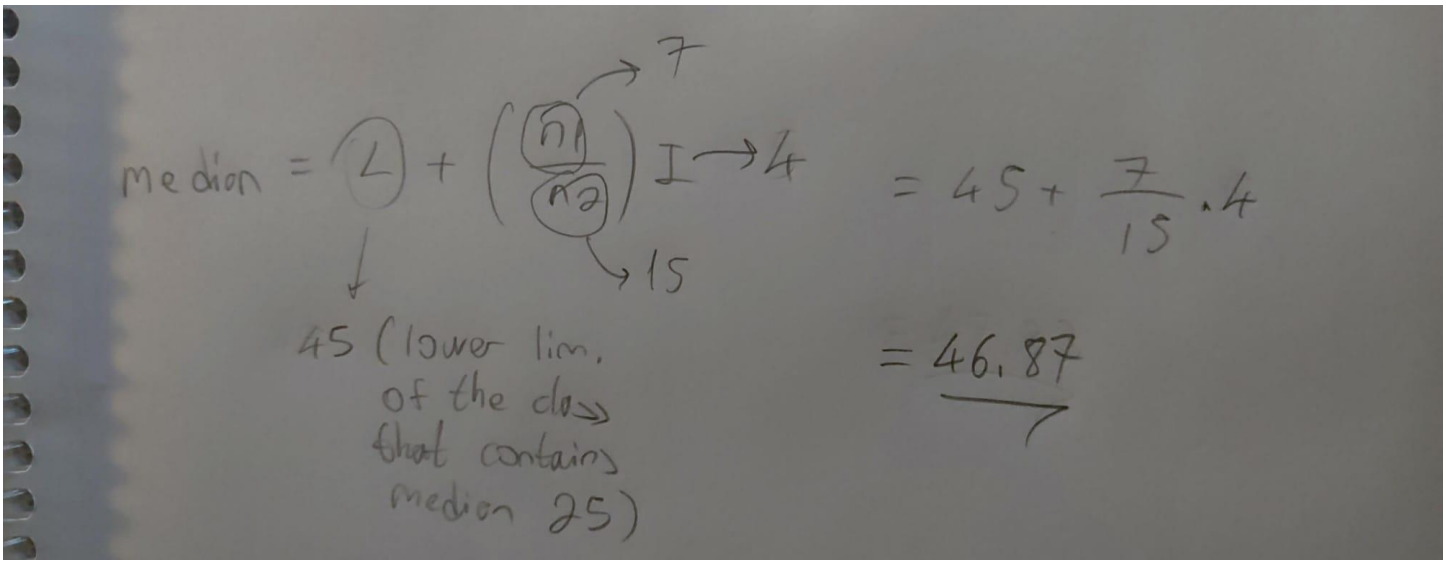

K6
=PERCENTILE.EXC(A1:H3, 0.95)
A B C D E F G H I J K
1 43 47 51 48 52 50 46 49 Mean: 48.125
2 45 52 46 51 44 49 46 51 Median: 49
3 49 45 44 50 48 50 49 50 Variance: 7.244565
4 Std. Dev.: 2.691573
5 5th Percentile: 44
6 95th Percentile: 52
7

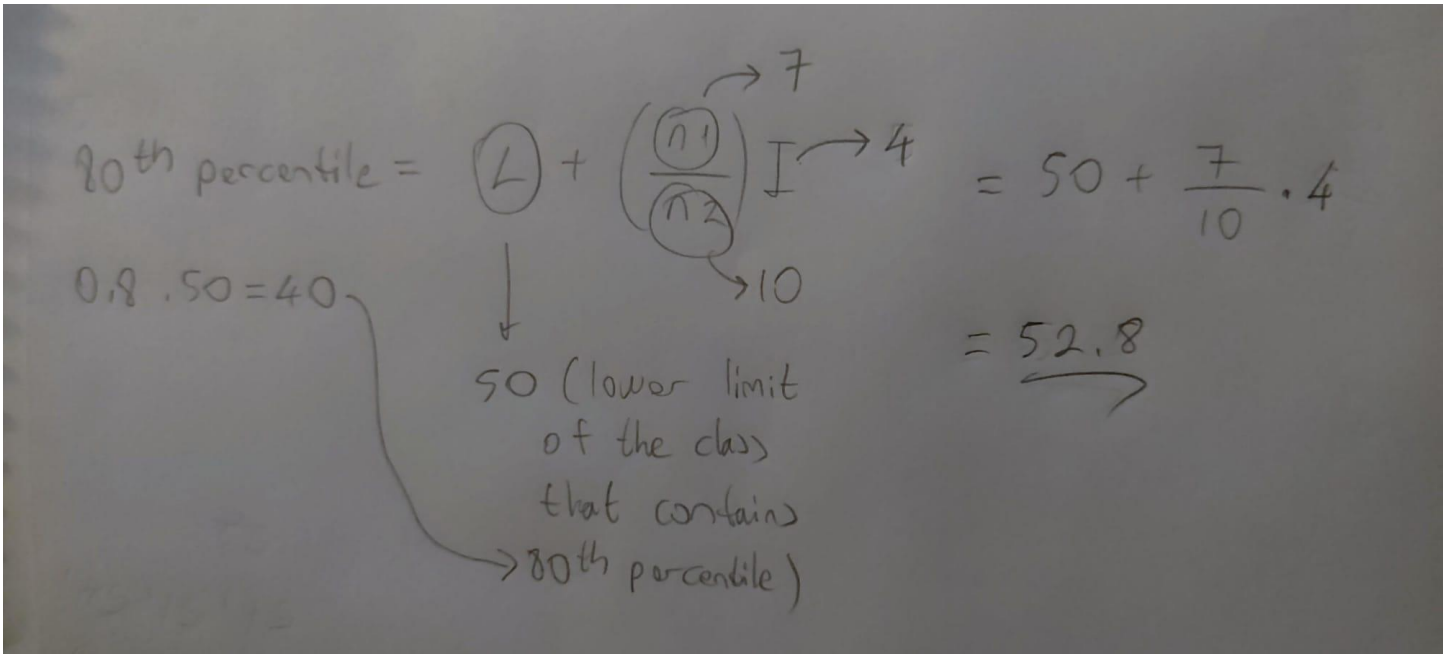
5)

diameter	freq.	class mid.	cum. num of cases
35-39	6	37	6
40-44	12	42	18
45-49	15	47	33
50-54	10	52	43
55-60	7	57,5	50

$$\bar{x} = \frac{\sum_{i=1}^{k} f_i M_i}{n}$$

$$\bar{x} = \frac{6.37 + 12.42 + 15.47 + 10.52 + 7.57,5}{50} = 47.07$$





$$\text{variance} = \frac{\sum_{i=1}^{k} f_i (M_i - \bar{X})^2}{n-1}$$

$$\text{Sum} = 6(37-47.07)^2 + 12(42-47.07)^2 + 15(47-47.07)^2 + 10(52-47.07)^2 + 7(57.5-47.07)^2$$

$$\text{Variance} = \frac{\text{Sum}}{50-1} = 23.67$$

$$\text{Std. dev} = \sqrt{23.67} = 4.87$$