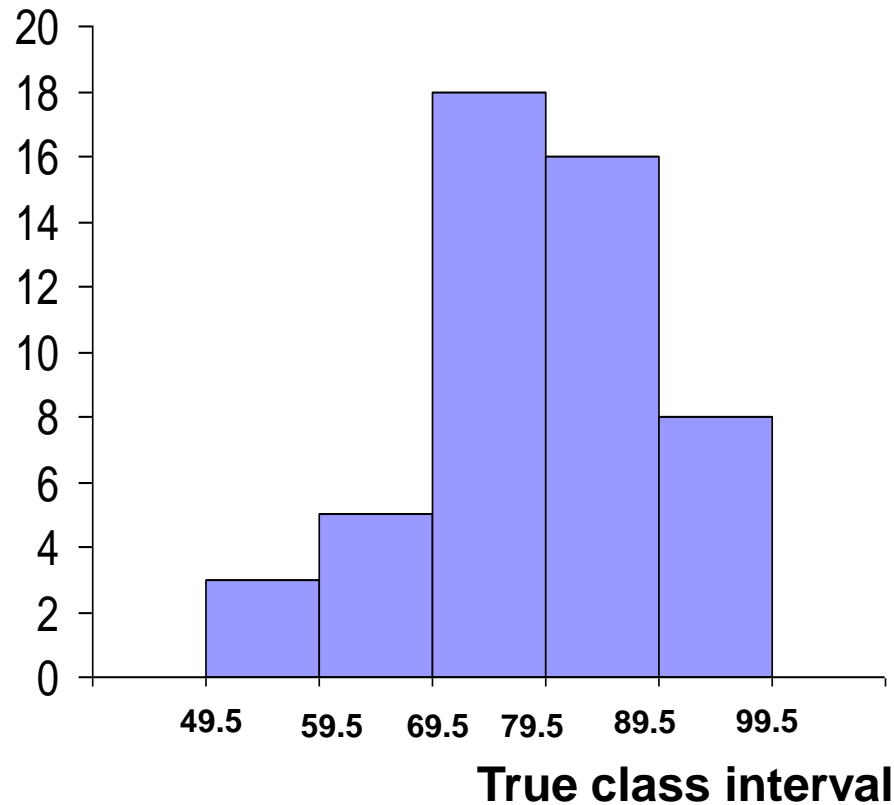




Descriptive Statistics



frequency



True class interval	frequency
49.5-59.5	3
59.5-69.5	5
69.5-79.5	18
79.5-89.5	16
89.5-99.5	8
total	50



We will learn in this lecture:

- **A frequency histogram**
- **A frequency polygon**
- **A frequency curve**
- **A stem -and –leaf plot**
- **A bar chart**
- **A line chart**
- **A pie chart**

Second Lecture

Data representation

Representation of Quantitative Data



A Frequency Histogram

A Frequency Polygon

A frequency curve

A steam -and –leaf plot

Example (1):

The following data represent the marks of 50 students in a course:



51 95 70 74 73 90 71 74 90 67

91 72 83 89 50 80 72 84 85 69

62 82 87 76 91 76 87 75 78 79

71 96 81 88 64 82 73 57 86 70

80 81 75 85 74 90 83 66 77 91

Table (1):frequency table



Class Interval	frequency
50-59	3
60-69	5
70-79	18
80-89	16
90-99	8
total	50

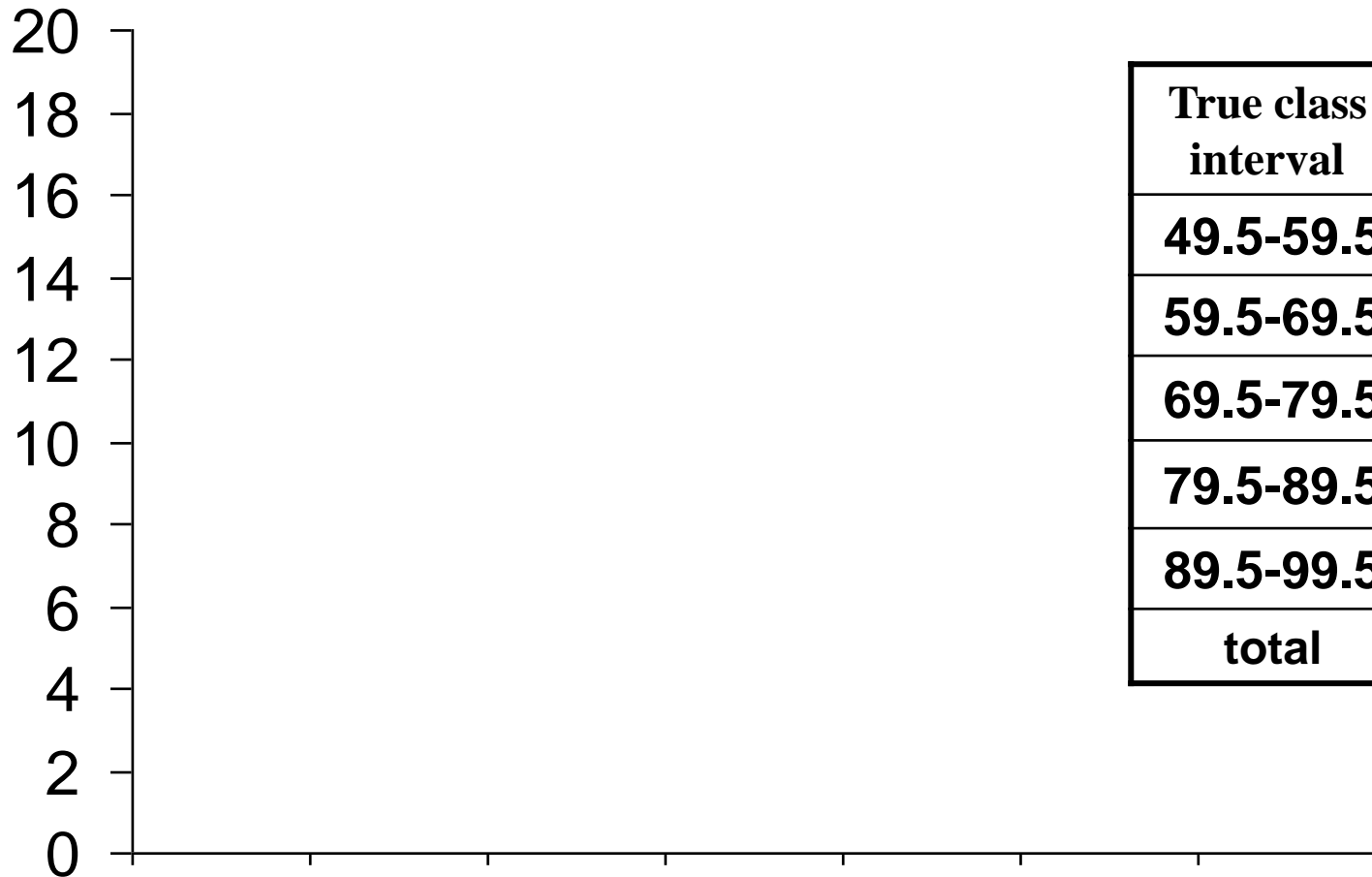


First:

A Frequency Histogram



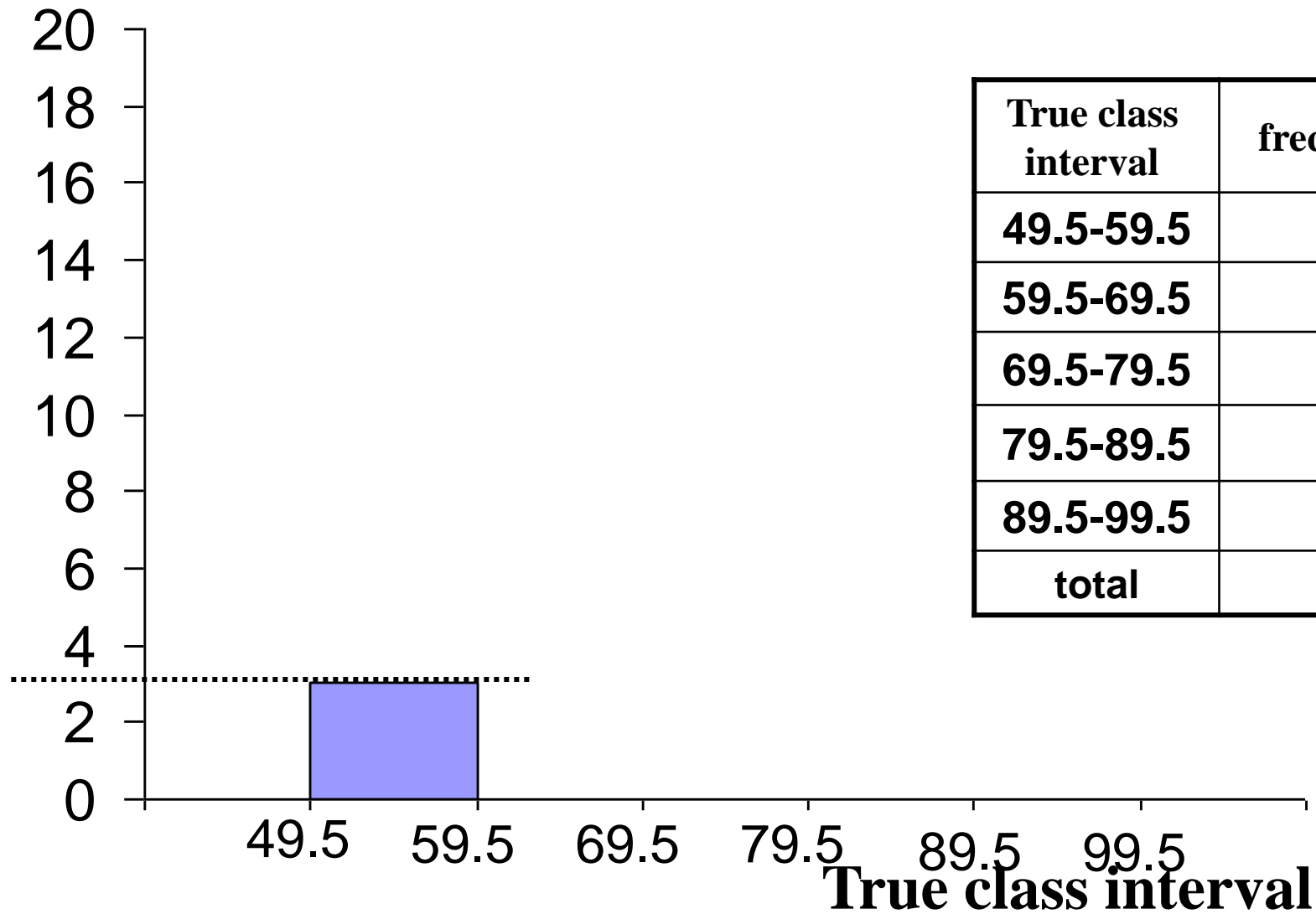
frequency



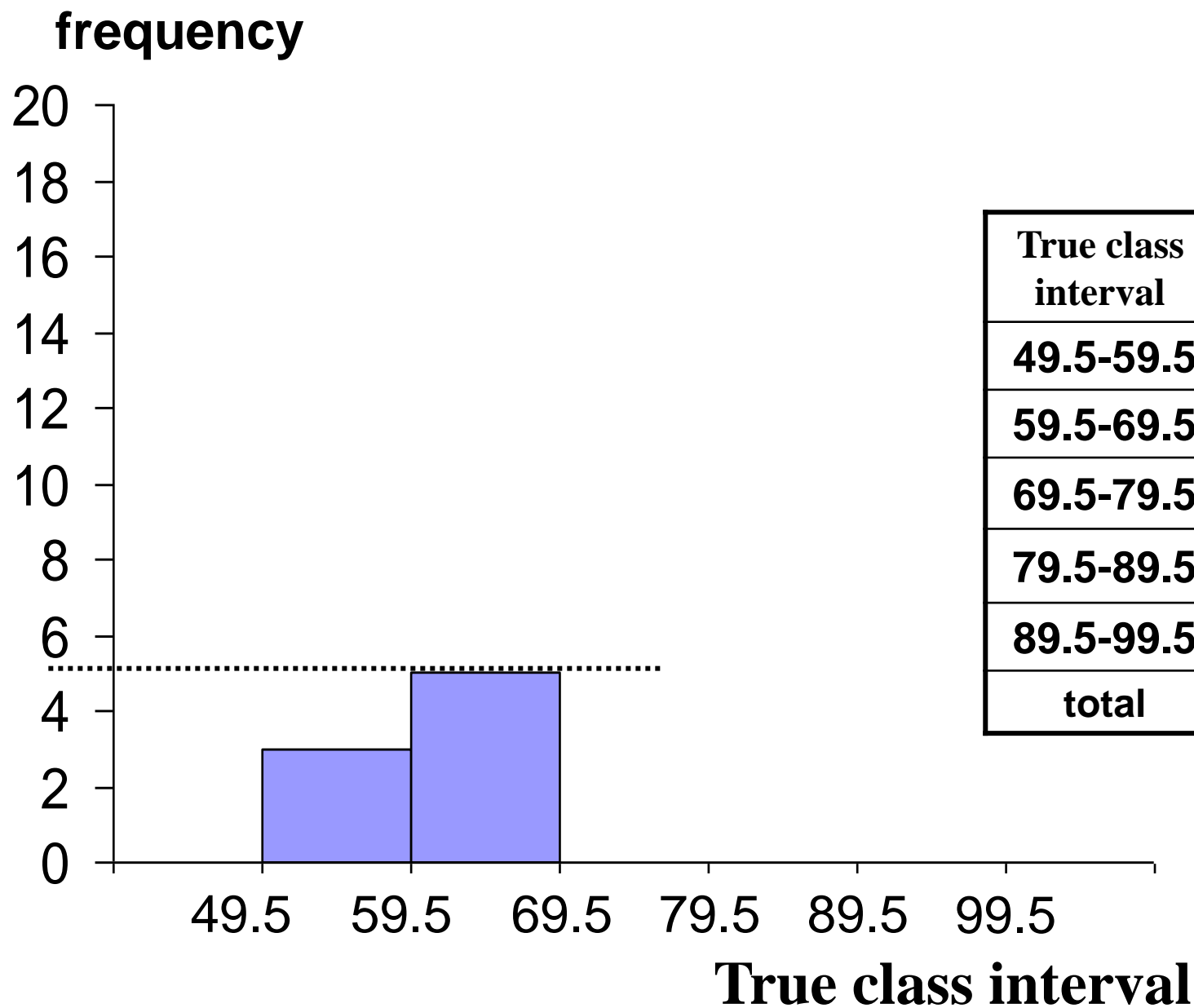
True class interval	frequency
49.5-59.5	3
59.5-69.5	5
69.5-79.5	18
79.5-89.5	16
89.5-99.5	8
total	50

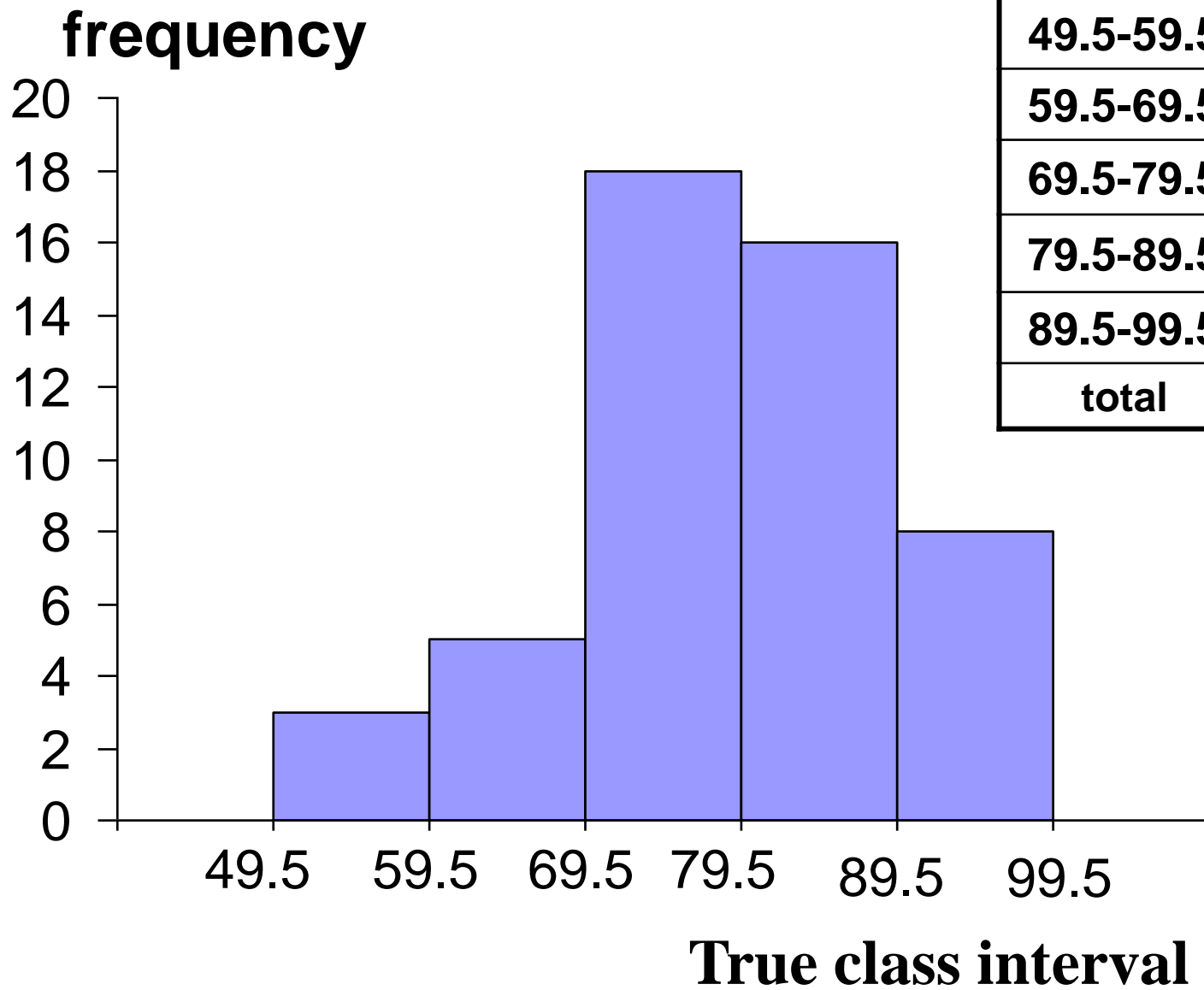
49.5 59.5 69.5 79.5 89.5 99.5
True class interval

frequency



True class interval	frequency
49.5-59.5	3
59.5-69.5	5
69.5-79.5	18
79.5-89.5	16
89.5-99.5	8
total	50





True class interval	frequency
49.5-59.5	3
59.5-69.5	5
69.5-79.5	18
79.5-89.5	16
89.5-99.5	8
total	50

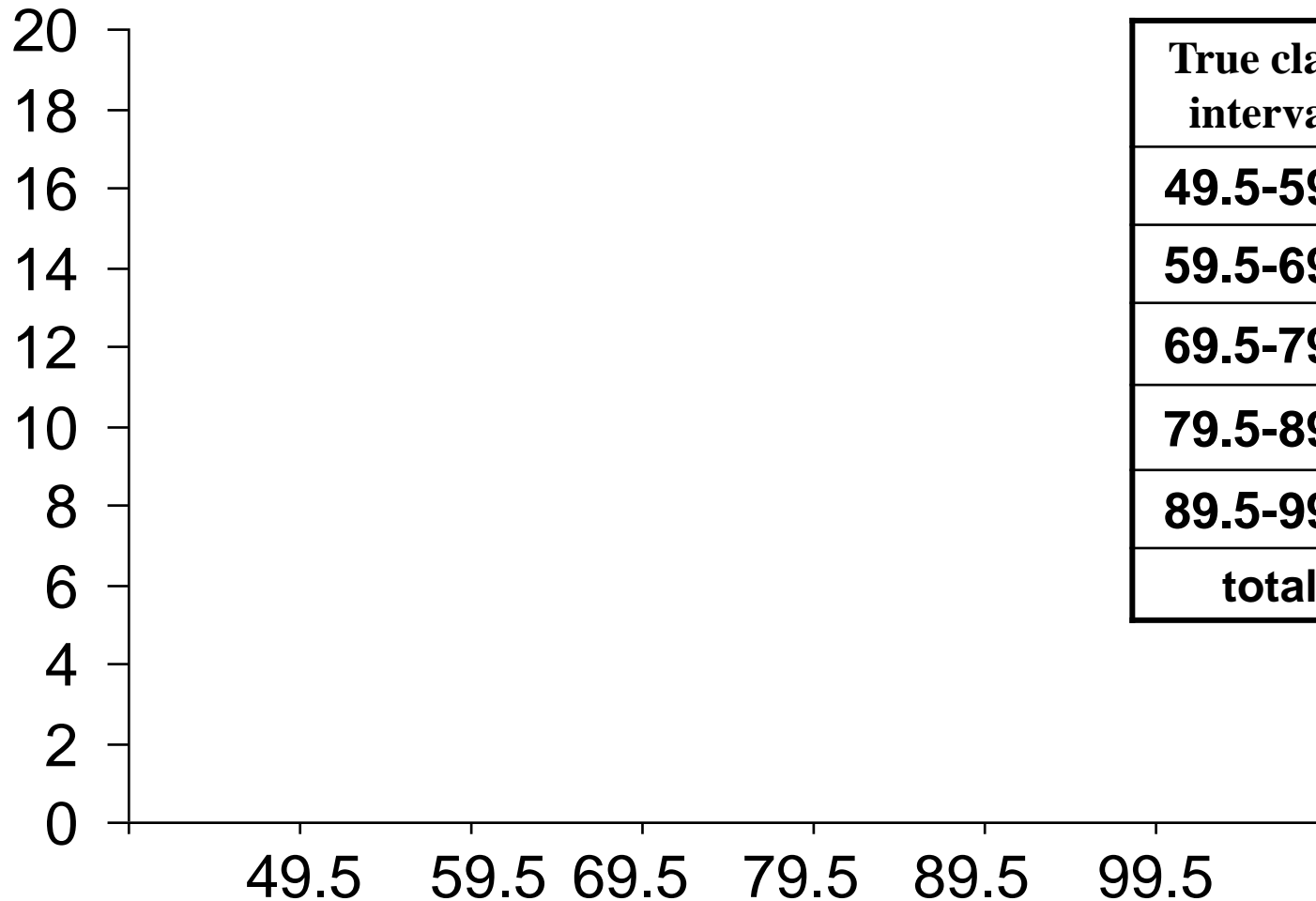


Secondly:

A Frequency Polygon



frequency

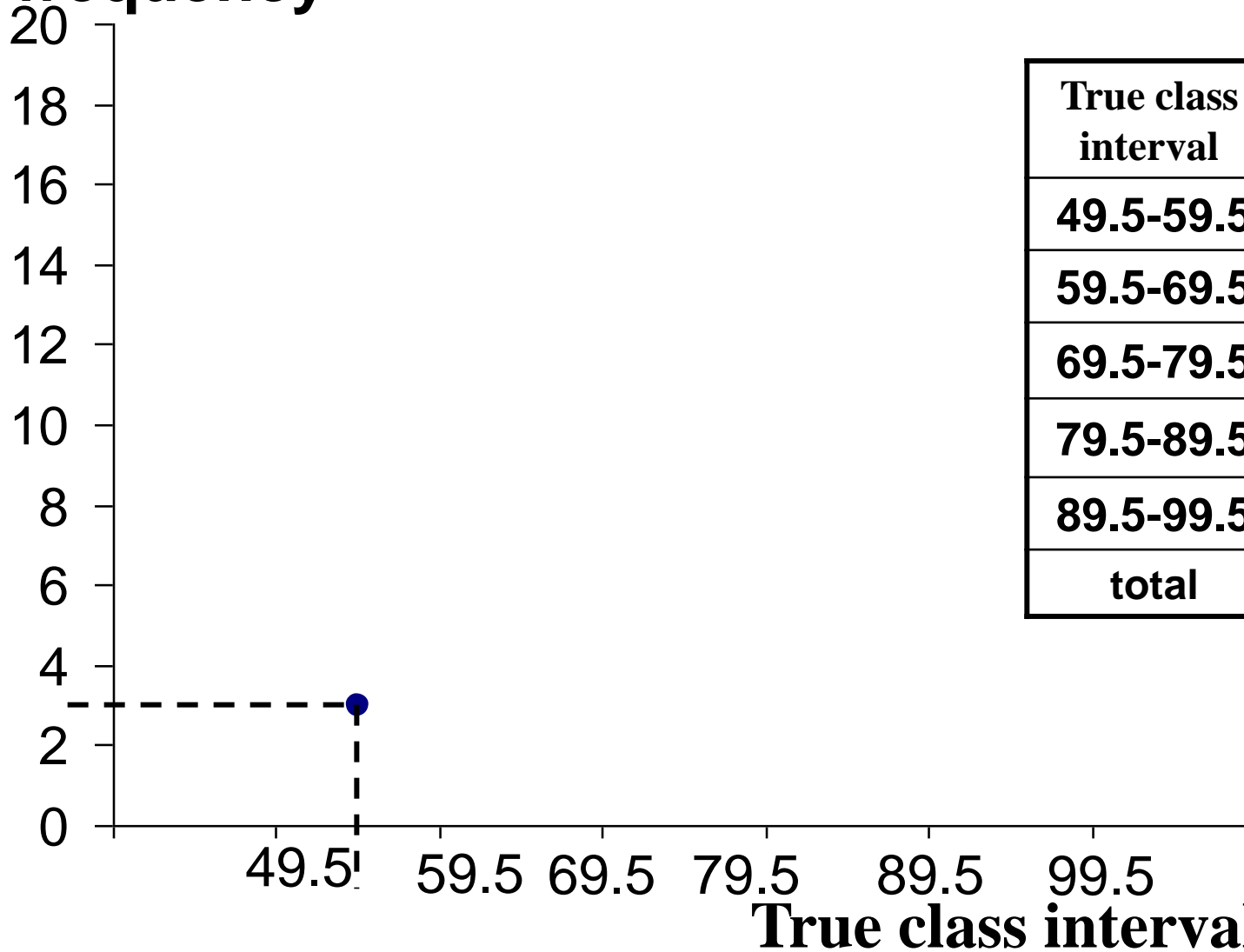


True class interval	frequency
49.5-59.5	3
59.5-69.5	5
69.5-79.5	18
79.5-89.5	16
89.5-99.5	8
total	50

True class interval



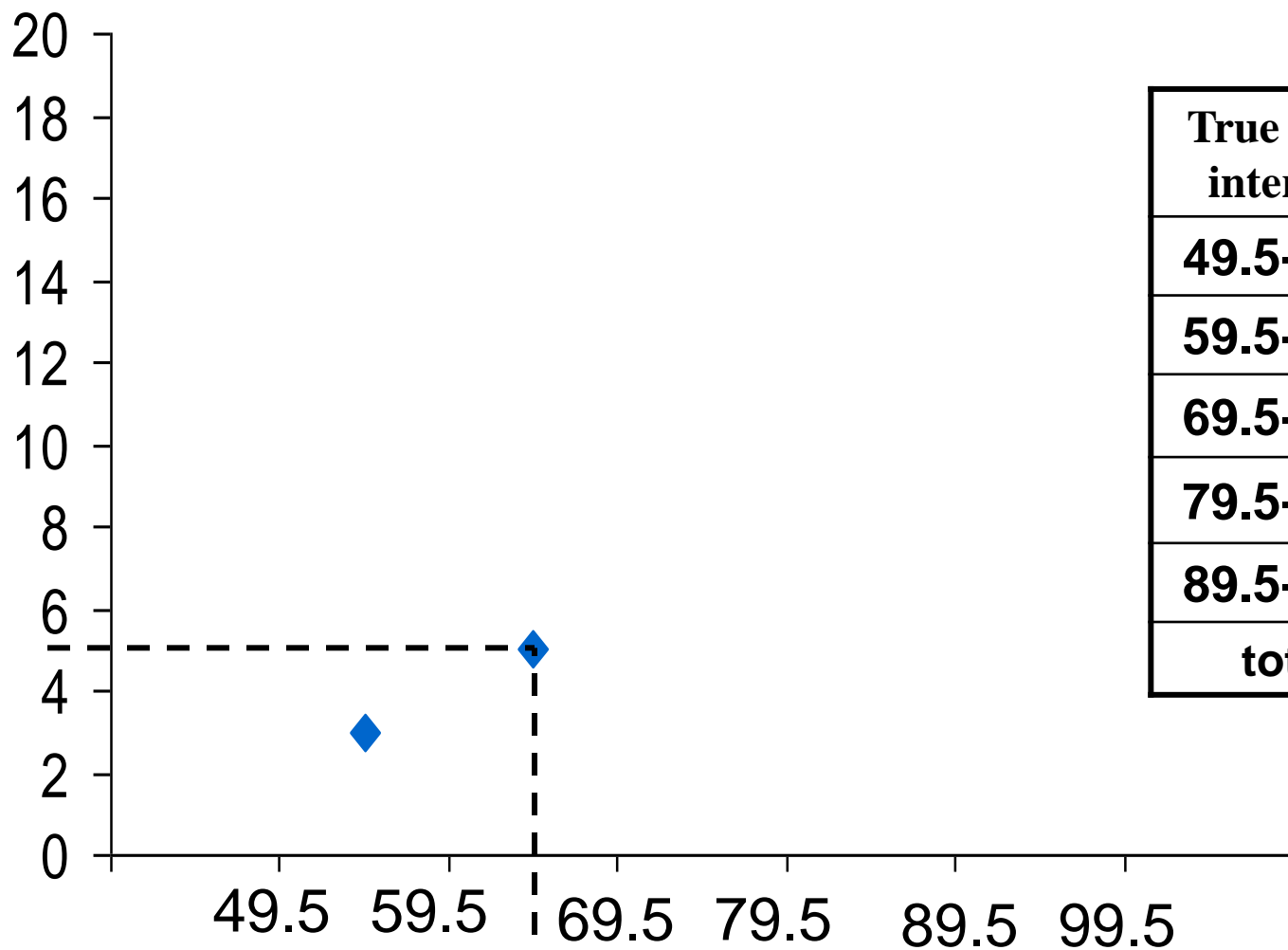
frequency



True class interval	frequency
49.5-59.5	3
59.5-69.5	5
69.5-79.5	18
79.5-89.5	16
89.5-99.5	8
total	50

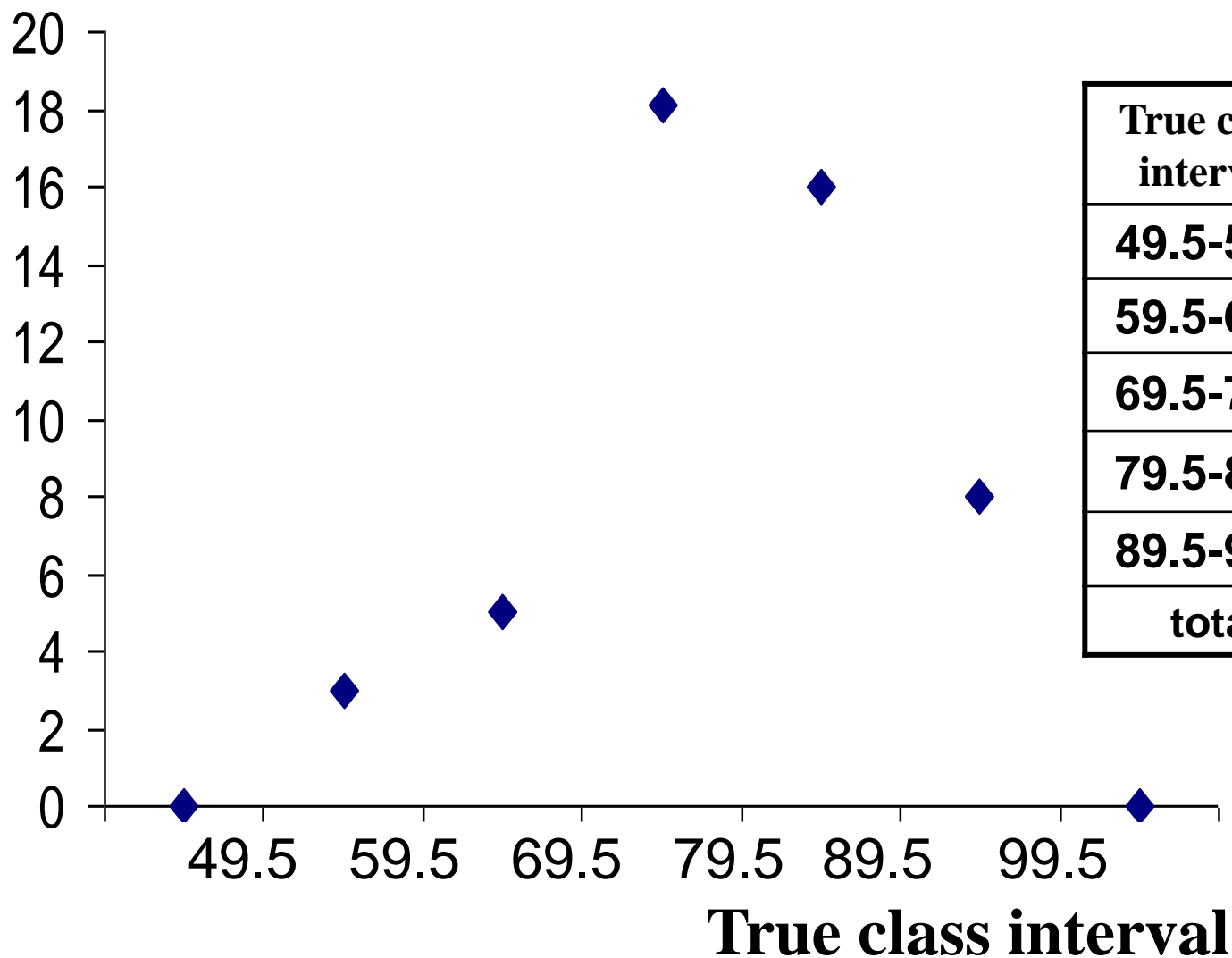


frequency



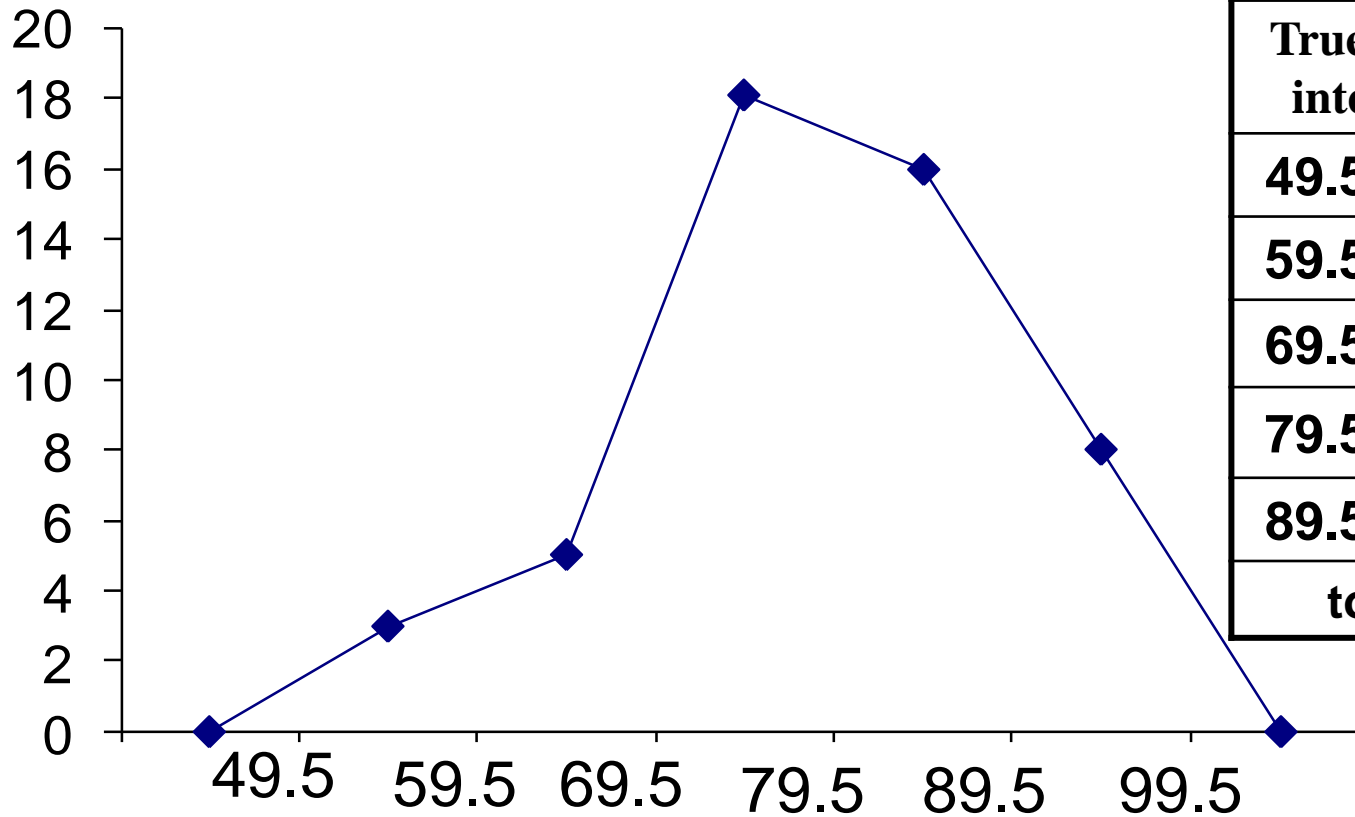
True class interval	frequency
49.5-59.5	3
59.5-69.5	5
69.5-79.5	18
79.5-89.5	16
89.5-99.5	8
total	50

frequency



True class interval	frequency
49.5-59.5	3
59.5-69.5	5
69.5-79.5	18
79.5-89.5	16
89.5-99.5	8
total	50

frequency



True class interval	frequency
49.5-59.5	3
59.5-69.5	5
69.5-79.5	18
79.5-89.5	16
89.5-99.5	8
total	50

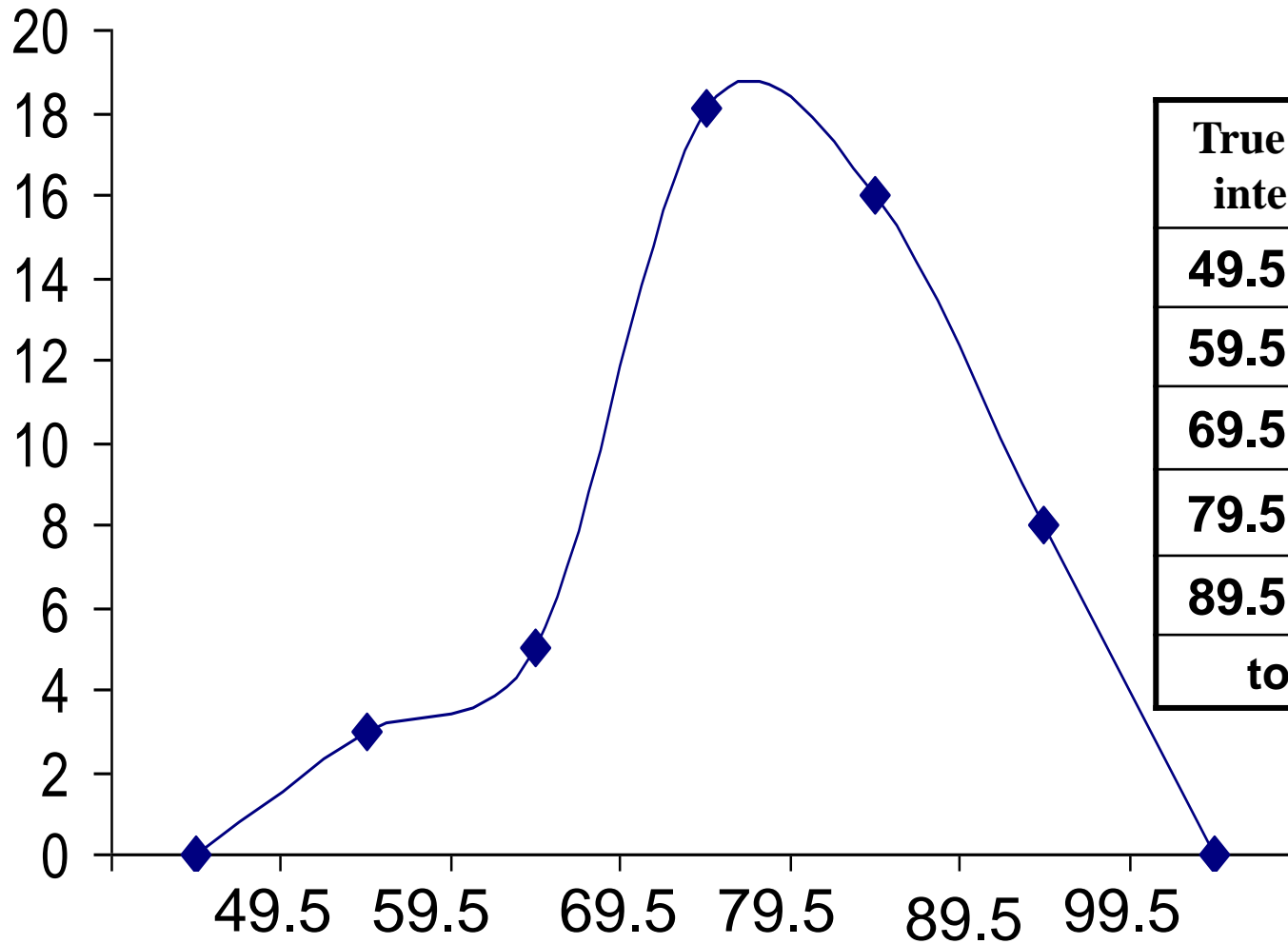
True class interval



thirdly

A Frequency Curve

frequency



True class interval	frequency
49.5-59.5	3
59.5-69.5	5
69.5-79.5	18
79.5-89.5	16
89.5-99.5	8
total	50

True class interval



A Steam-And-Leaf Plot

A Steam-And-Leaf Plot



Example(2):

The following data represent students' marks in Statistics course:

28	46	49	42	58	59	53
50	51	66	62	64	67	69
63	68	67	69	75	70	78
75	74	84	85	88	93	99

28	46	49	42	58	59	53
50	51	66	62	64	67	69
63	68	67	69	75	70	78
75	74	84	85	88	93	99

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



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



Example(3):

Display the data in a steam-and-leaf plot.

35.4	36.8	32.9	38.9	37.5	37.5	36.7	36.4	37.9	38.6
32.9	33.4	37.2	32.9	32.0	32.2	34.2	35.7	35.7	35.7
34.4	36.1	35.8	34.5	36.7	38.0	38.7	34.6	32.1	37.2

35.4	36.8	32.9	38.9	37.5	37.5	36.7	36.4	37.9	38.6
32.9	33.4	37.2	32.9	32.0	32.2	34.2	35.7	35.7	35.7
34.4	36.1	35.8	34.5	36.7	38.0	38.7	34.6	32.1	37.2

32	9	9	9	0	2	1
33	4					
34	2	4	5	6		
35	4	7	7	7	8	
36	8	7	4	1	7	
37	5	5	9	2	2	
38	9	6	0	7		



32	0	1	2	9	9	9
33	2	4				
34	2	4	5	6		
35	4	7	7	7	8	
36	1	4	7	7	8	
37	2	2	5	5	9	
38	0	6	7	9		

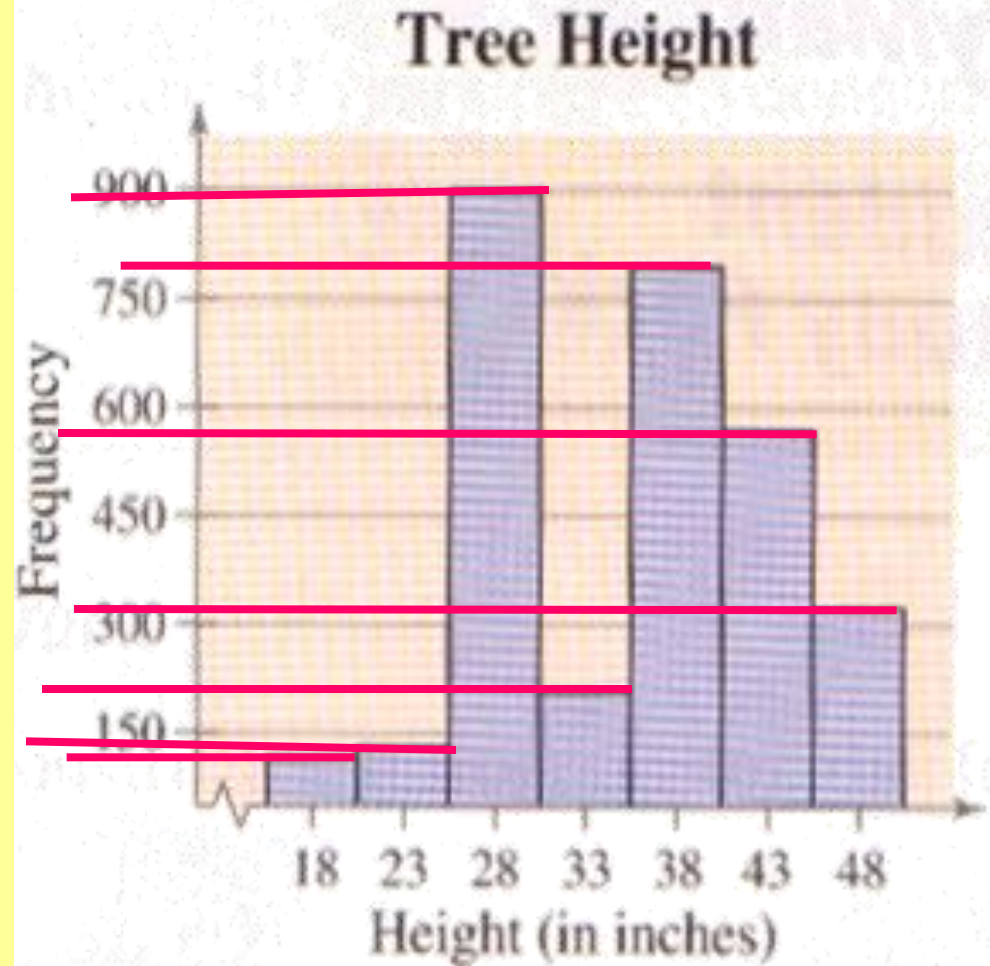


Examples

Example(4):

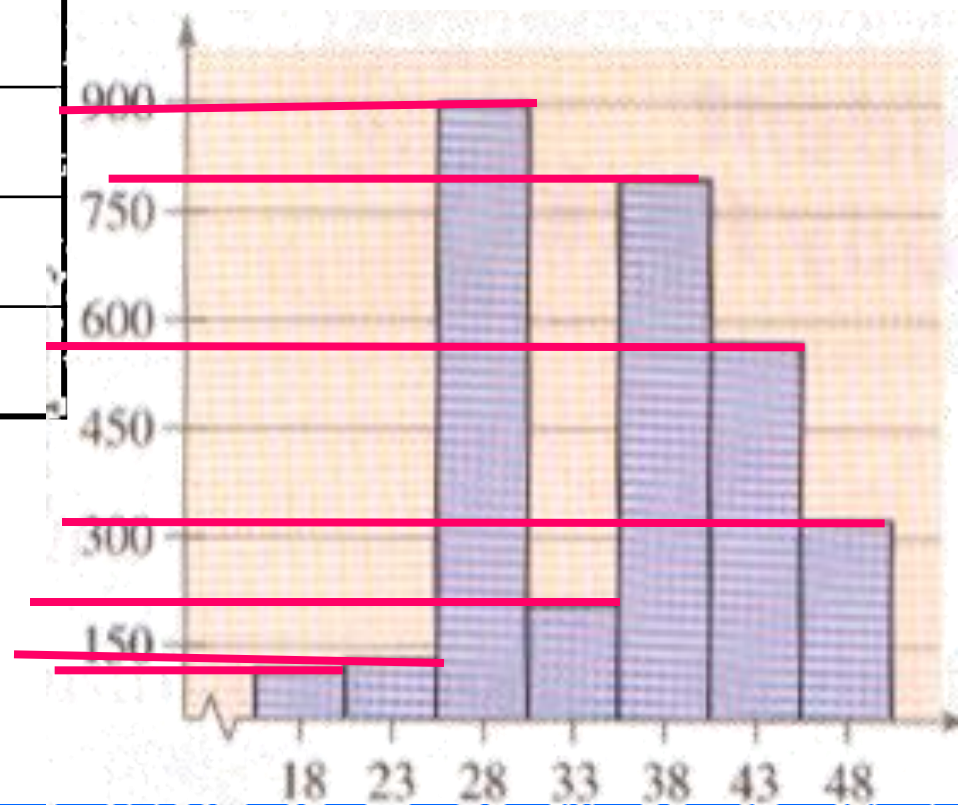


1. Name this plot.
2. What does the vertical axis represent?
3. What does the horizontal axis represent?
4. Determine the type of data.
5. Determine the class width.
6. Estimate frequencies
7. Construct the frequency table corresponding to the plot

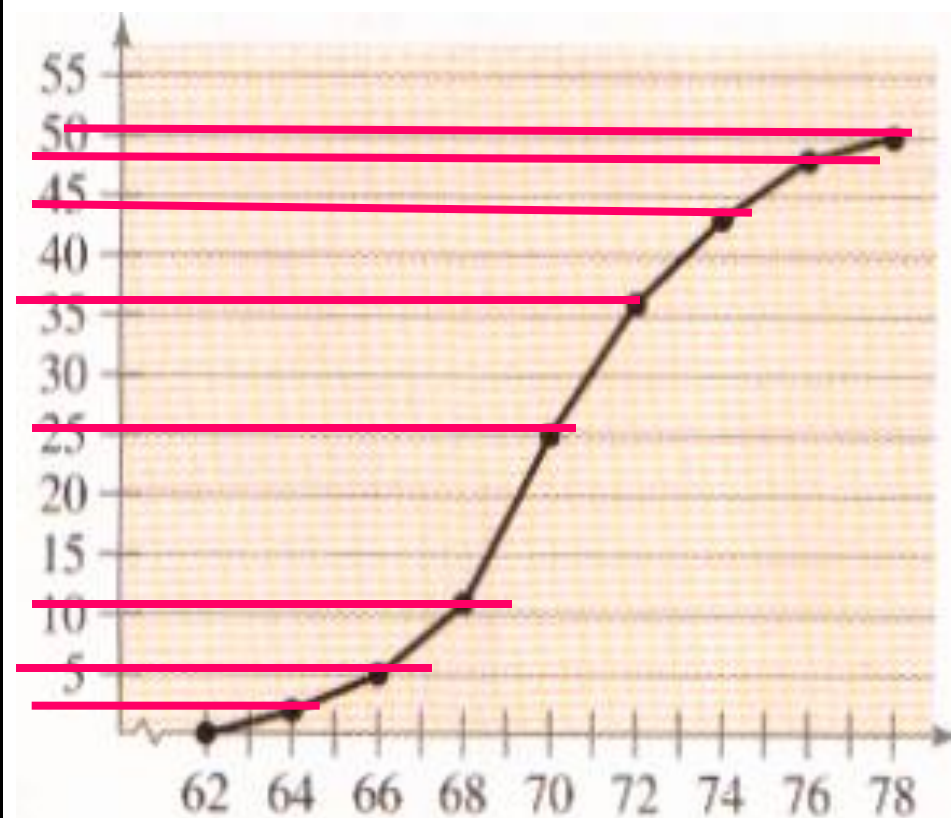




Class Interval	Mid-points	frequency
15.5-20.5	18	130
20.5-25.5	23	140
25.5-30.5	28	900
30.5-35.5	33	200
35.5-40.5	38	790
40.5-45.5	43	540
45.5-50.5	48	320



Lower class boundaries	A.C.f
less than 62	0
less than 64	3
less than 66	5
less than 68	10
less than 70	25
less than 72	36
less than 74	44
less than 76	48
less than 78	50

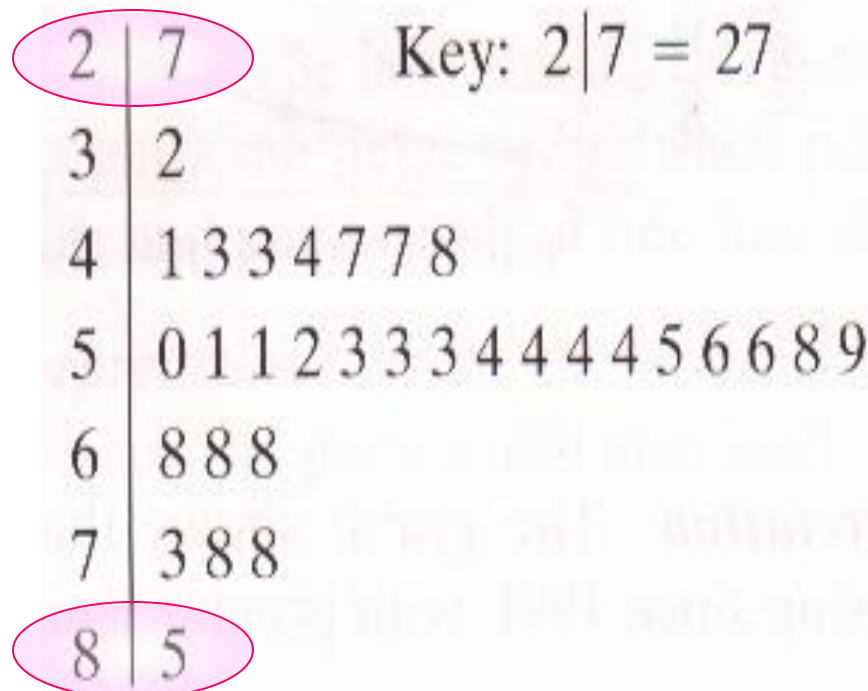


Example (6):



1. Use the steam-and-leaf plot to list the actual data entries.
2. What is the maximum data entry?
3. What is the minimum data entry?
4. What is the range?

27	32	41	43	43
44	47	47	48	50
51	51	52	53	53
53	54	54	54	54
55	56	56	58	59
68	68	68	73	78
78	85			



The representation of qualitative data



Line chart

Bar chart

Pie cart



Example(7):

from The below table shows the number of high schools in KSU 1395/1396 to 1400/1401 :

year	1395/96	1396/97	1397/98	1398/99	1399/1400	1400/1401
Number of school	212	257	331	407	46	513

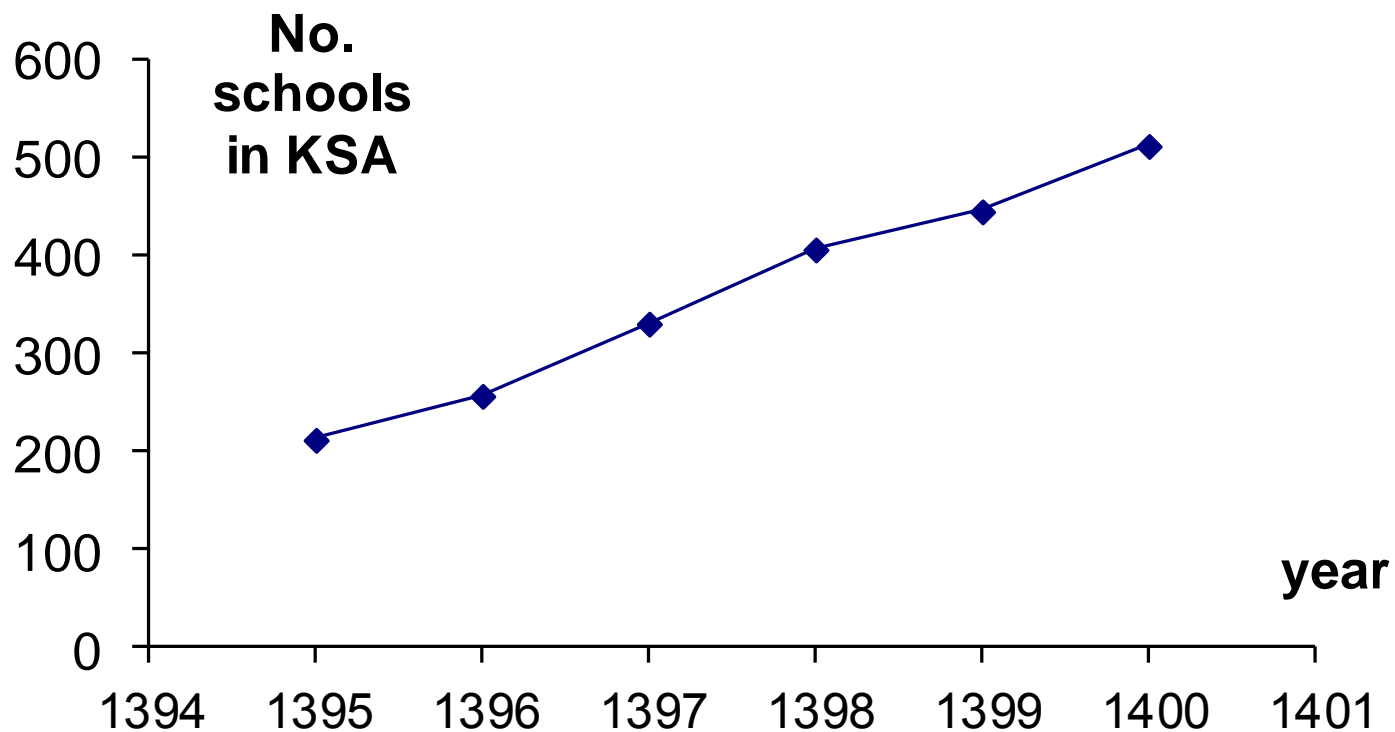
Represent the table in a suitable chart



Firstly:

Line Chart

Year	1395/96	1396/97	1397/98	1398/99	1399/1400	1400/1401
No. School	212	257	331	407	446	513





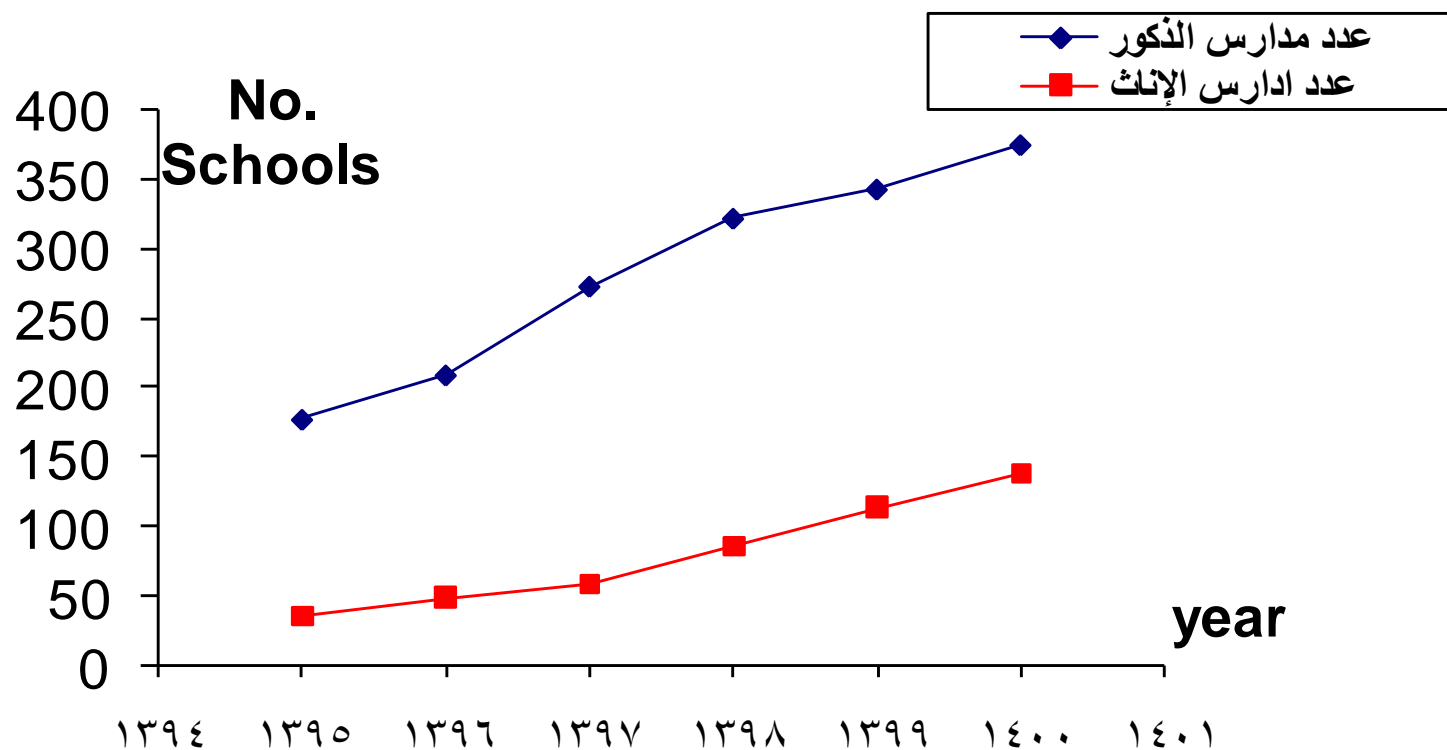
Example(8):

The following table shows the No. of schools in KSA for both genders from 1395/1396 to 1400/1401:

year	1395/96	1396/97	1397/98	1398/99	1399/1400	1400/1401
No. M Schools	177	209	273	322	343	375
No. F Schools	35	48	58	85	113	138

Represent the table in a suitable chart

year	1395/96	1396/97	1397/98	1398/99	1399/1400	1400/1401
No. M schools	177	209	273	322	343	375
No. F schools	35	48	58	85	113	138





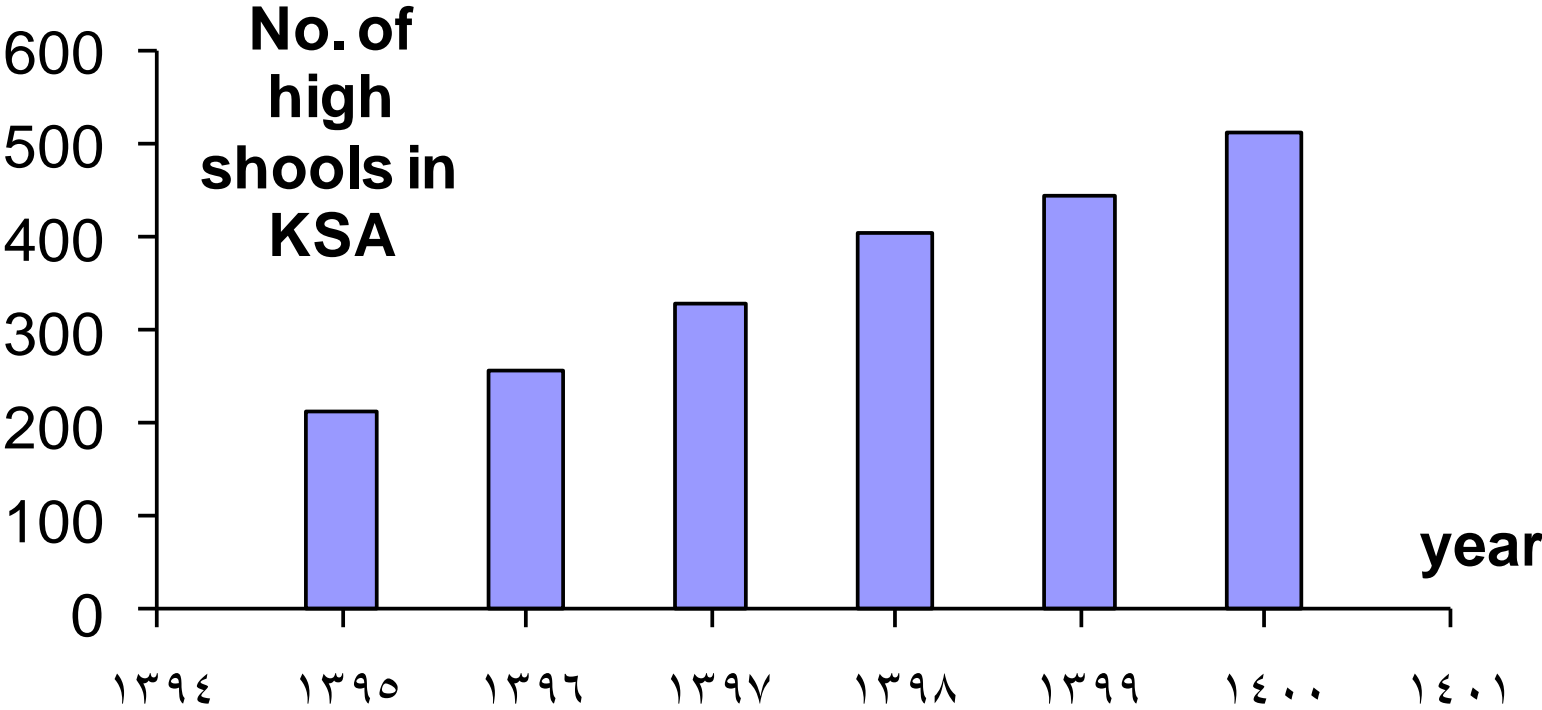
Secondly:

Bar chart



Simple bar chart

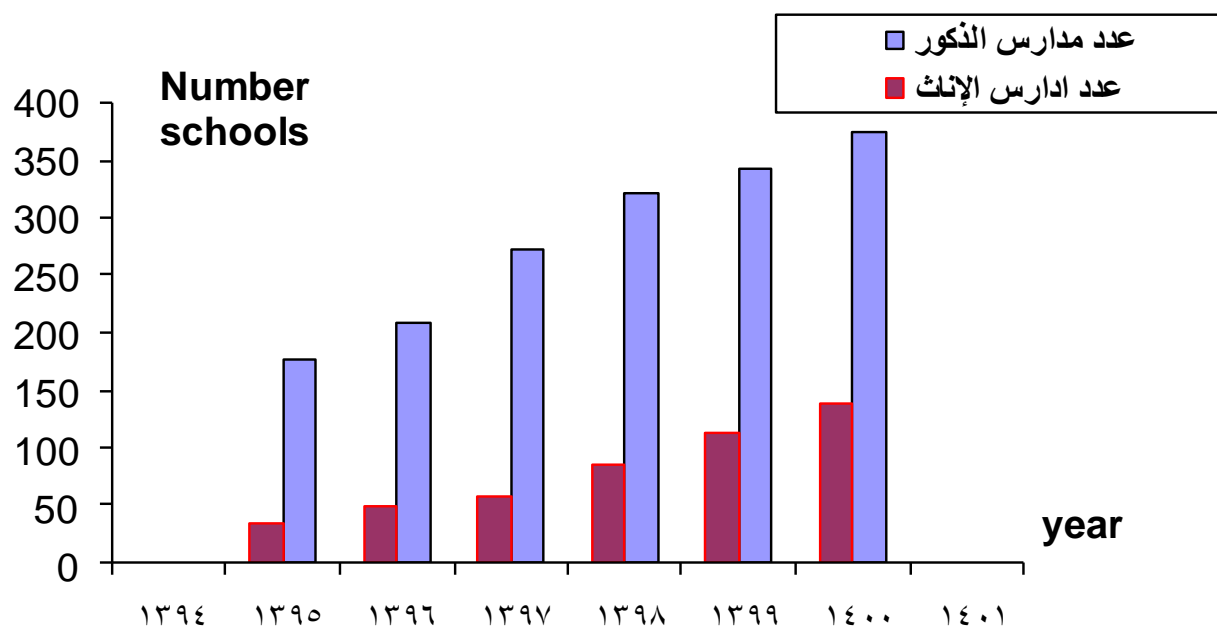
year	1395/96	1396/97	1397/98	1398/99	1399/1400	1400/1401
No. Schools	212	257	331	407	46	513





Cluster charts

year	1395/96	1396/97	1397/98	1398/99	1399/1400	1400/1401
No. M schools	177	209	273	322	343	375
No. F schools	35	48	58	85	113	138





Third

Pie charts



$$\text{Central Angle} = \frac{\text{frequency} \times 360}{\text{total of frequencies}}$$

Example (9):

The following table shows the area of continents to be represented by Pie charts



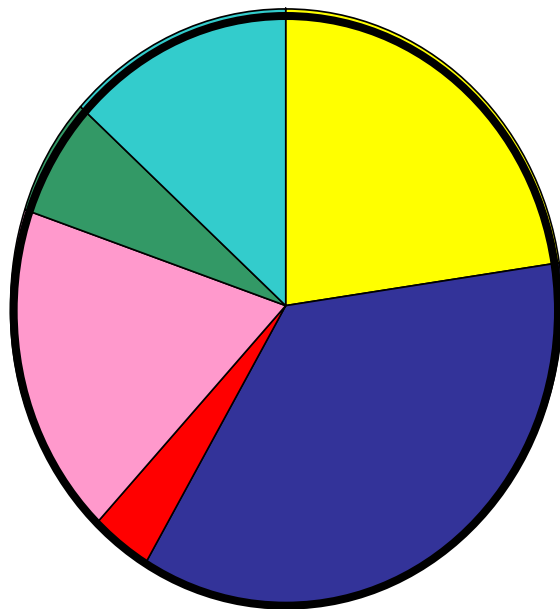
continent	Area (m ²)
Africa	30.3
Asia	47.4
Europe	4.9
North America	24.3
Australia	8.5
South America	17.9



continent	Area (m ²)	Central Angle
Africa	30.3	81.83 ≈ 82
Asia	47.4	128.01 ≈ 128
Europe	4.9	13.23 ≈ 13
North America	24.3	65.63 ≈ 66
Australia	8.5	22.96 ≈ 23
South America	17.9	48.34 ≈ 48
Total	133.3	360

$$\frac{30.3}{133.3} \times 360$$

$$\frac{47.4}{133.3} \times 360$$



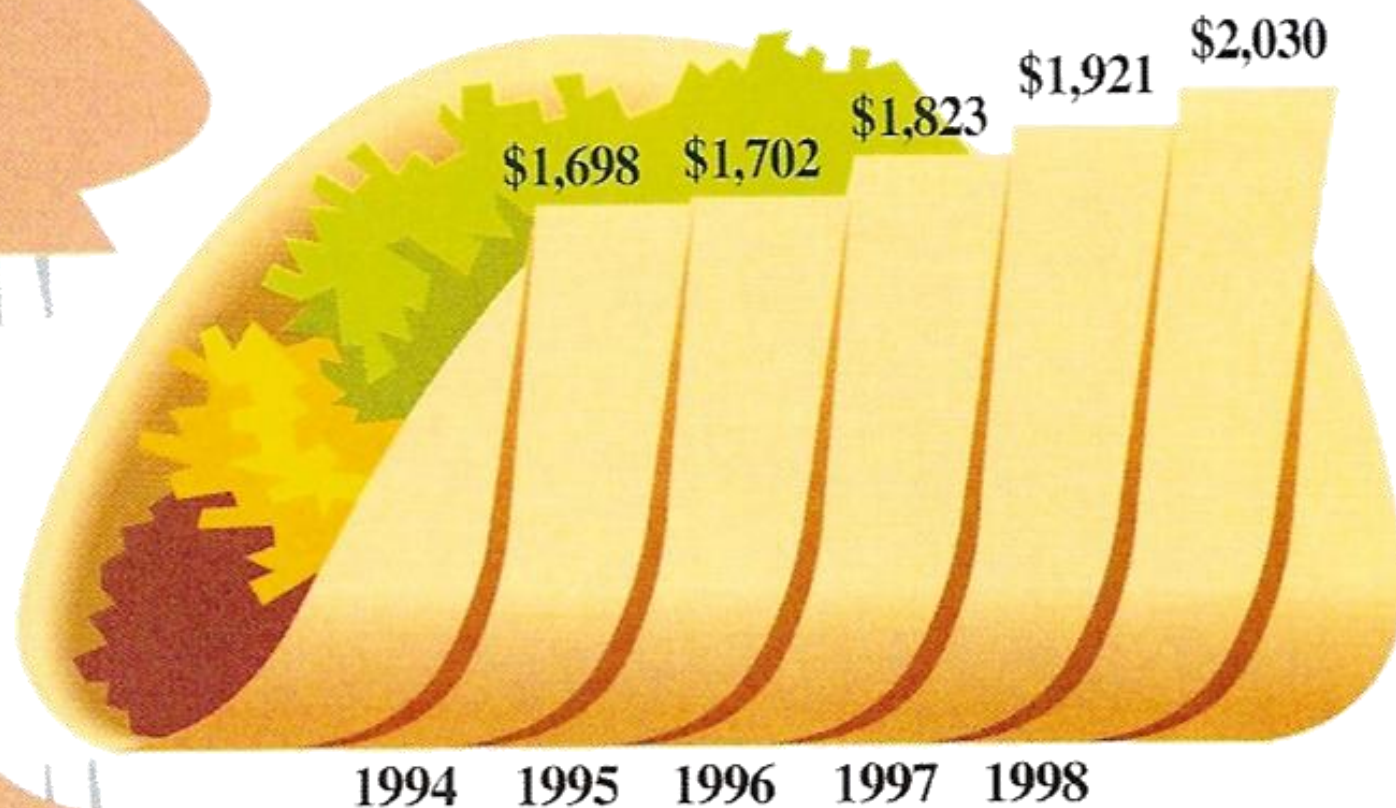
continent	Area (m ²)	Central Angle
Africa	30.3	82
Asia	47.4	128
Europe	4.9	13
North America	24.3	66
Australia	8.5	23
South America	17.9	48
Total	133.3	360



Realistic studies



جدول يوضح ارتفاع معدل ما أنفقته الأسر الأمريكية
في الأكل في المطاعم.





سرطان الثدي في العالم



سرطان الثدي يقتل ٥٠٠ ألف شخص في العالم سنويا

■ نسبة نجاح الجراحة لسرطان الثدي

■ معدل البقاء لمن لم يخضع للجراحة

■ معدل البقاء على قيد

الحياة لمن خضع

للجراحة

% ١٢

% ٢٧

% ٨٠



الرؤية Graphic

الطلاق في المجتمع السعودي



أسباب وقوع الطلاق



خلق الزوج

سوء تقدير

الحياة الزوجية

العلاقات غير

المشروعة



نسب من حالات الطلاق



يتم الطلاق قبل ثلاث سنوات من الزواج

يرفضن العودة إلى أزواجهن



أكثر الرياضات نفعاً





- **A frequency histogram**
- **A frequency polygon**
- **A frequency curve**
- **steam -and –leaf plot**
- **A bar chart**
- **A line chart**
- **A pie chart**

Summarization