

\*Chapter 2 :

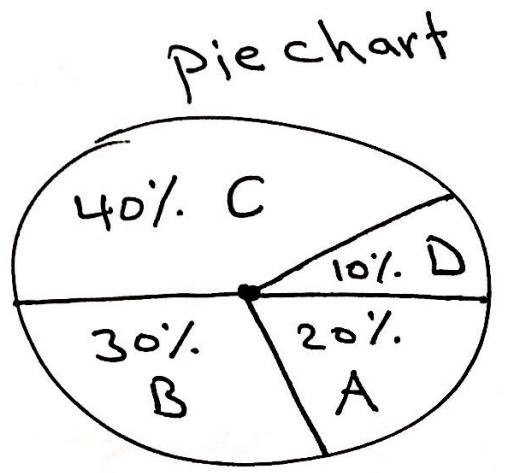
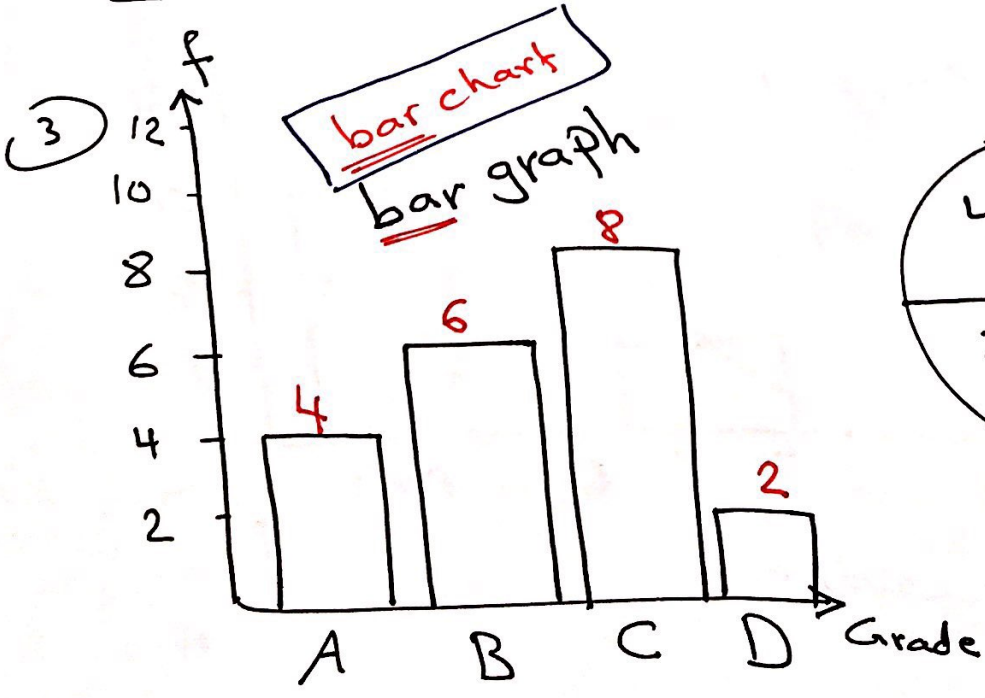
Ex: Let the following data:

A B B C D B C C B C  
C B A C A D C B A C

- ① Construct a frequency table. كونه جدول تكراري
- ② Calculate the relative and Percentage. نسبة مئوية
- ③ Draw: a) bar graph. دائرة b) pie chart.

Sol: ①

Class Grade	f - تكرار frequency	relative	Percent
A	4	$\frac{4}{20} = 0.2$	$\frac{4}{20} \times 100 = 20\%$
B	6	0.3	30%
C	8	0.4	40%
D	2	0.1	10%
Sum	20	1	100%



Ex: Let the following data:

(3)

7 9 11 12 12 13 10 11 9 8 7 6 11 10 12  
 10 8 16 14 15 12 12 13 7 6 8 16 13 8 6

a) Complete the table.

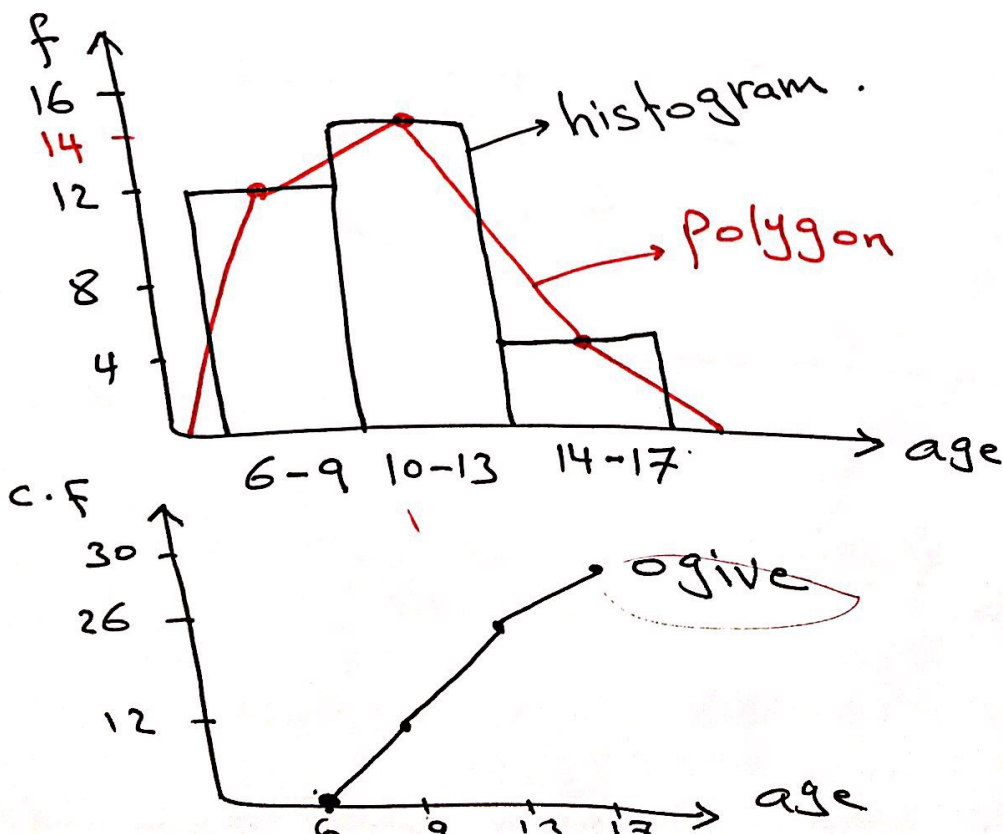
ترتيب صاعد (c.f)

class Age	Frequency	Relative	Percent	<	Ascending Cumulative
6-9	12	$\frac{12}{30} = 0.4$	40%	< 6	0
10-13	14	$\frac{14}{30} = 0.47$	47%	$\leq 9$	12
14-17	4	$\frac{4}{30} = 0.13$	13%	$\leq 13$	26
total	30	$\frac{30}{30} = 1$	100%	$\leq 17$	30

b) Find the percentage of people having an age 13 or less?

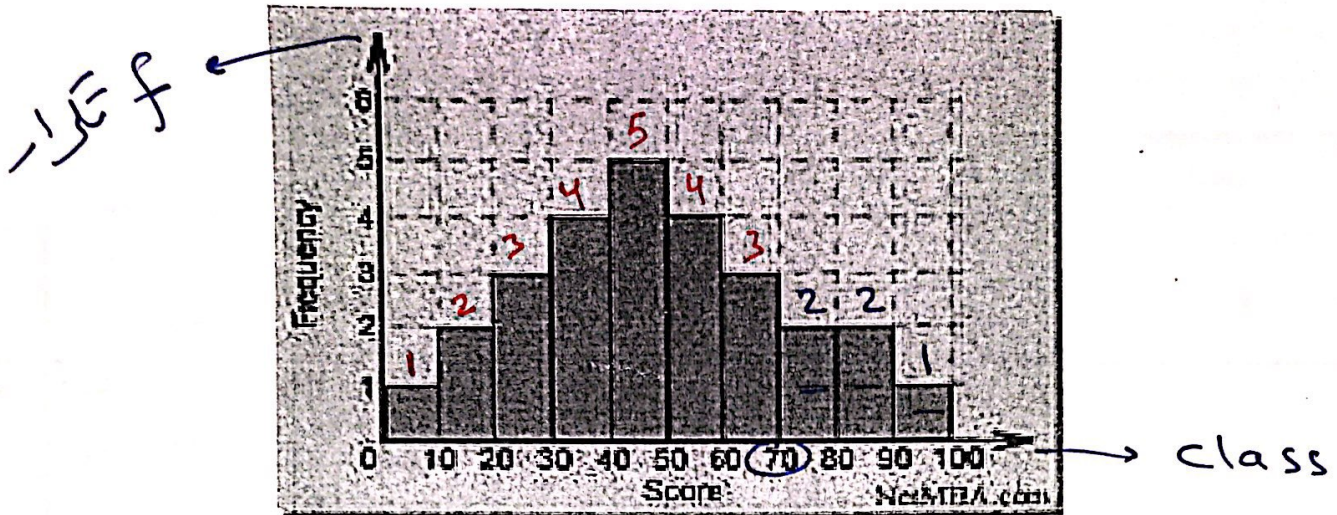
Sol :  $40\% + 47\% = 87\%$

c) Draw : ① histogram. ② polygon. ③ Ogive





**Exercise (9):** The following graph show the statistics exam degrees for 27 students.



Choose the correct answer

1-	The name of is this graph. <span style="float: right;">دايرة</span>			
	a- Bar chart	b- Pie chart	c- Histogram <span style="float: right;">مدرج</span>	d- Polygon <span style="float: right;">مضلع</span>
2-	What the <u>width</u> of each class. <span style="float: right;">(قعدة) طول القعدة</span>			
	a- 12	b- 15	c- 10	d- 11
3-	The <u>minimum</u> value is <span style="float: right;">اقل قيمة</span>			
	a- 10	b- 12	c- 0	d- 5
4-	The class has the <u>greatest</u> number of students is <span style="float: right;">القعدة ذات الأبر تناوار</span>			
	a- 40-50	b- 50-60	c- 30-40	d- 60-70
5-	The <u>number</u> of students have more than <u>70</u> degree is <span style="float: right;">2 + 2 + 1</span>			
	a- 8	b- 6	c- 5	d- 10
6-	The <u>largest</u> value is <span style="float: right;">أكبر قيمة</span>			
	a- 80 <span style="float: right;">مركز قعدة</span>	b- 90	c- 100	d- 95

7 Find midpoint for the class with highest frequency ?

**Exercise (10):** The following data represent a group of 20 students' grades:

A B C A D  
 B C F D C  
 A F D B B  
 D C A C C

- Construct the frequency distribution table.
- Obtain the percent frequency table.
- Draw a bar chart of the data.

جد مركز القعدة ذات الأبر تناوار -

$$\frac{40 + 50}{2} = 45$$

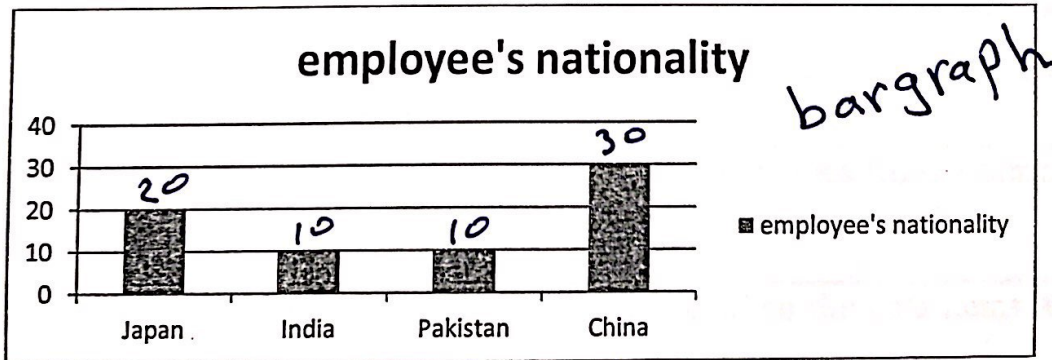


**Answer all the following questions.**

**Question (1):** Put the sign (X) to indicate the type of data.

		Qualitative	Quantitative
1-	Blood types of a sample of 50 students.	✓	
2-	Gender of a high school graduate.	✓	
3-	The final letter grades received by students in a statistics course.	✓	
4-	Marital status of faculty members.	✓	
5-	The amount of fuel sold at gas stations.		✓
6-	Student degree in final statistical exam.		✓
7-	The age of the students in Imam university.		✓
8-	Number of checks drawn from the bank.		✓

**Question 2:** The graph below represents the nationality of each employee in an international company:



what is the name of graph : → *bar chart*

a) Find the number of Pakistani employees? *10*

b) Find the total number of all employees? *70*

c) Find the percentage (percent distribution) of Indian employees?  $\frac{10}{70} \times 100\% = 14.28\%$

d) Which one of these nationalities has the largest number of employees?

→ *china.*

Choose the correct answer.

1-	The <u>difference</u> between the <u>largest</u> and <u>smallest</u> data values is a) Mean. b) Mode. <input checked="" type="checkbox"/> c) Range.
2-	Quantitative data are always <input checked="" type="checkbox"/> a) Numeric. b) Non numeric. c) Numeric or non numeric.
3-	To compare the variability of two or more sets of data measured in different units you must use a) Variance. b) Mean. <input checked="" type="checkbox"/> c) Coefficient of variation.
4-	The measures of the relative change in price, quantity, value, or some other item of interest from one time period to another is a) Coefficient of variation. b) Time series. <input checked="" type="checkbox"/> c) Index numbers.
5-	The period for which you wish to find the index number is a) Current period. b) Base period. c) Irregular component.
6-	A well-defined collection of objects constitutes a a) Sample. b) Census. c) Population.
7-	A numerical measure describing some characteristic of a <u>population</u> is a) Sample. b) Statistic. <input checked="" type="checkbox"/> c) Parameter.

فضلا انظر خلف الصفحة

8-	<p>Which of the following is <u>Not</u> a measure of variation</p> <ul style="list-style-type: none"> <li>a) Standard deviation.</li> <li>b) Coefficient of variation.</li> <li><input checked="" type="checkbox"/> c) Geometric mean.</li> </ul>
9-	<p>The regression line minimizes</p> <ul style="list-style-type: none"> <li>a) The sum of errors.</li> <li>b) The total of errors.</li> <li>c) The sum of squares of the errors.</li> </ul>
10-	<p>If the data contains an <u>extreme</u> values then the best measure of central tendency is</p> <ul style="list-style-type: none"> <li>a) Mean.</li> <li>b) Mode.</li> <li><input checked="" type="checkbox"/> c) Median.</li> </ul>
11-	<p>The difference between the third quartile and first quartile is called</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> a) The inter quartile range.</li> <li>b) The mid quartile.</li> <li>c) The differential quartile.</li> </ul>
12-	<p>Cyclic component is a repeating swings or movements over</p> <ul style="list-style-type: none"> <li>a) One year.</li> <li>b) More than one year.</li> <li>c) Less than one year.</li> </ul>