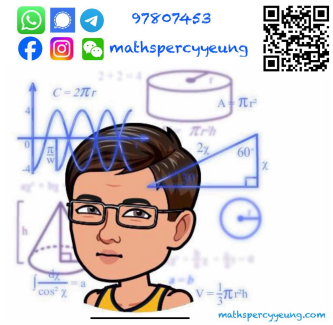
Chapter 6 Introduction to Statistical Graphs

Multiple Choice Section

1. The frequency distribution table shows the number of children in each flat of a certain building. How many families have more than 2 children in this building?

Number of children	Tally
0	///
1	////
2	//// //
3	//// /



A. 0 B. 6 C. 7 D. 20

2. The frequency distribution table shows the most favourite fruit of 50 students.

	Fruit	Tally	Frequency
I	Apple	//// //// //	12
II	Orange	////	5
III	Banana	////	5
IV	Watermelon	//// //// ///	13
V	Pear	////	15
		Total	50

Which row in the table is incorrect?

A. II B. III C. IV D. V

3. The following frequency distribution table shows the number of hours that students involved in extracurricular activities each week.

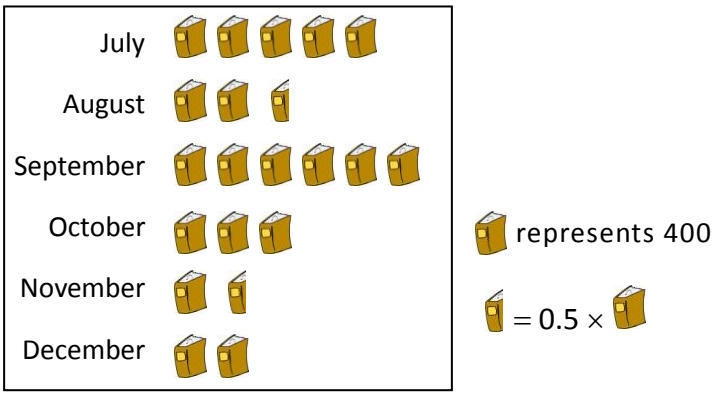
No. of hours	0	1	2	3	4	5
Frequency	1	21	10	4	2	4

According to the table, what is the total number of students?

A. 42 B. 21 C. 15 D. 4

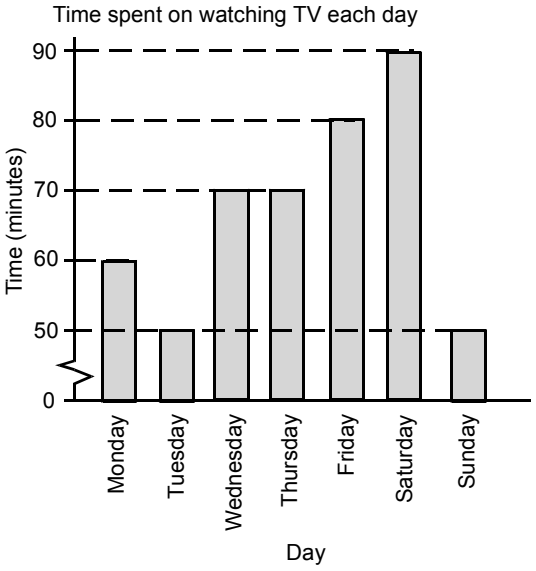
4. How many books were sold from July to September?

Number of books sold in Kent's Bookstore from July to December



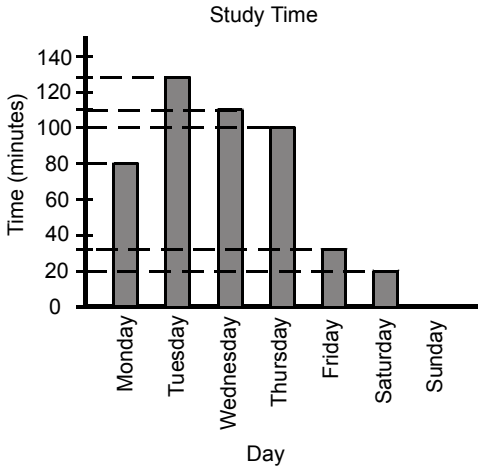
A. 5 000 B. 5 400 C. 7 000 D. 8 400

5. According to the bar chart, how much time was spent on watching TV on Thursday?



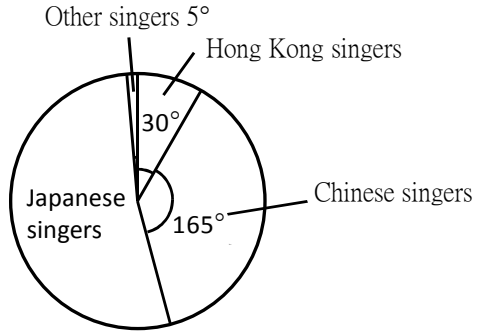
A. 30 minutes B. 40 minutes C. 50 minutes D. 70 minutes

6. According to the bar chart, how long did the student study from Monday to Wednesday?



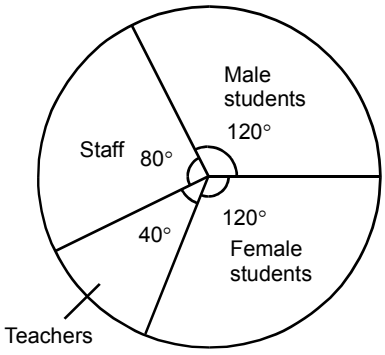
A. 80 minutes B. 110 minutes C. 130 minutes D. 320 minutes

7. The pie chart shows the distribution of favourite singers in a certain group. Which region's singers are the most popular in that group?



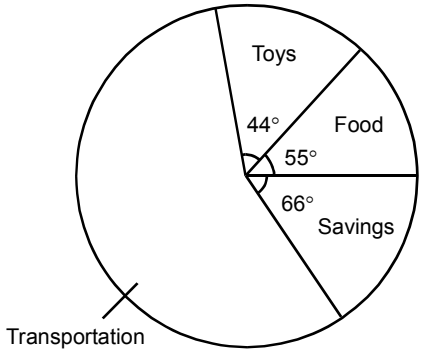
A. China B. Japan C. Hong Kong D. Hong Kong and Japan

8. There are 2 700 people in a school, in which the distribution is shown in the following pie chart. How many staff are there in the school?



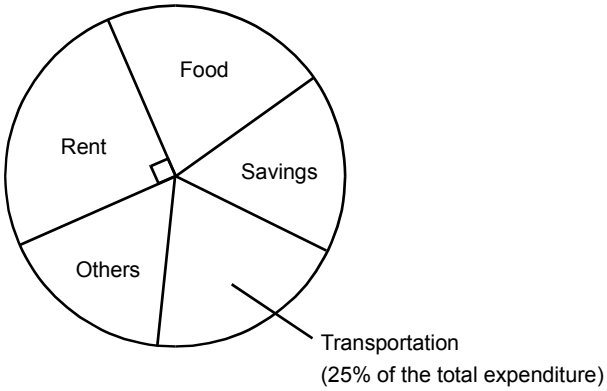
A. 400 B. 600 C. 800 D. 1 000

9. The pie chart shows the distribution of Jacky's pocket money in a certain month. If Jacky's pocket money was $120 that month, how much did he spend on transportation?



A. $195 B. $165 C. $65 D. $44

10. The pie chart shows the expenditure of a person. What is the angle at the centre representing transportation?

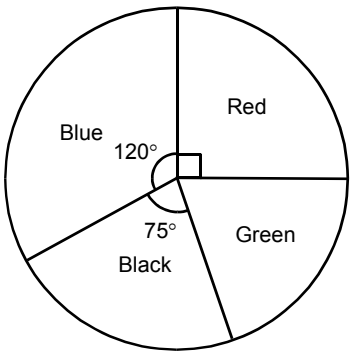


A. 70° B. 80° C. 90° D. 100°

11. The favourite hobbies of the students in a class are as follows: 20% like playing football, 35% like playing basketball, 15% like playing computer games, 30% like eating. If the data is presented using a pie chart, what is the angle at the centre representing computer games?

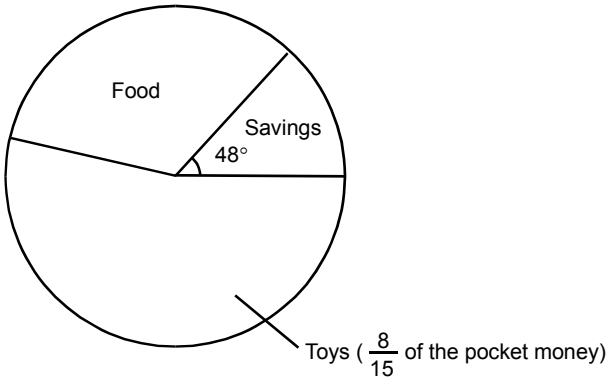
A. 126° B. 108° C. 72° D. 54°

12. The pie chart shows the sales of tracksuits of different colours in a store. If the store sold 480 red tracksuits, how many green tracksuits were sold?



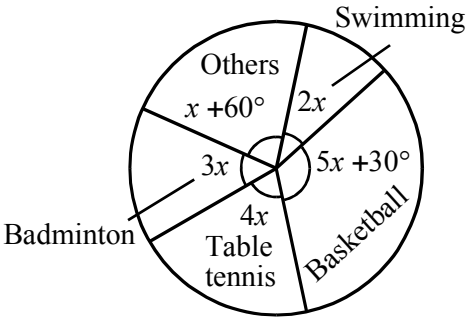
A. 360 B. 400 C. 480 D. 500

13. The pie chart shows the distribution of Winnie's pocket money in a certain month. If Winnie spent \$160 on toys that month, what is the total amount she spent on food and toys?



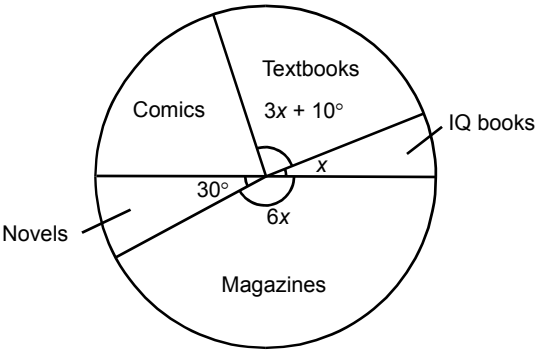
A. \$85.3 B. \$170.6 C. \$130 D. \$260

14. The pie chart shows the distribution of favourite extracurricular activities of students. If there are 720 students, how many of them like playing table tennis?



A. 144 B. 240 C. 108 D. 156

15. The pie chart shows the categorization of the books that Calvin has. If Calvin has 720 books, in which 50 of them are IQ books, how many comics does he have?



A. 60 B. 140 C. 170 D. 300

16. The stem-and-leaf diagram shows the examination marks of 40 students in F. 1A. How many of them have marks less than or equal to 65?

Stem (10 marks)	Leaves (1 mark)
0	017
1	019
2	368999
3	0
4	00235
5	117799
6	223344459
7	56
8	79
9	129

A. 24 B. 31 C. 32 D. 33

Section A(1)

1. 20 items are selected from the Suntown Shop and their selling prices (in $) are listed below.

20	10	10	8	10
10	20	5	10	8
5	20	8	10	10
8	10	5	20	8

Organize the data using a frequency distribution table.

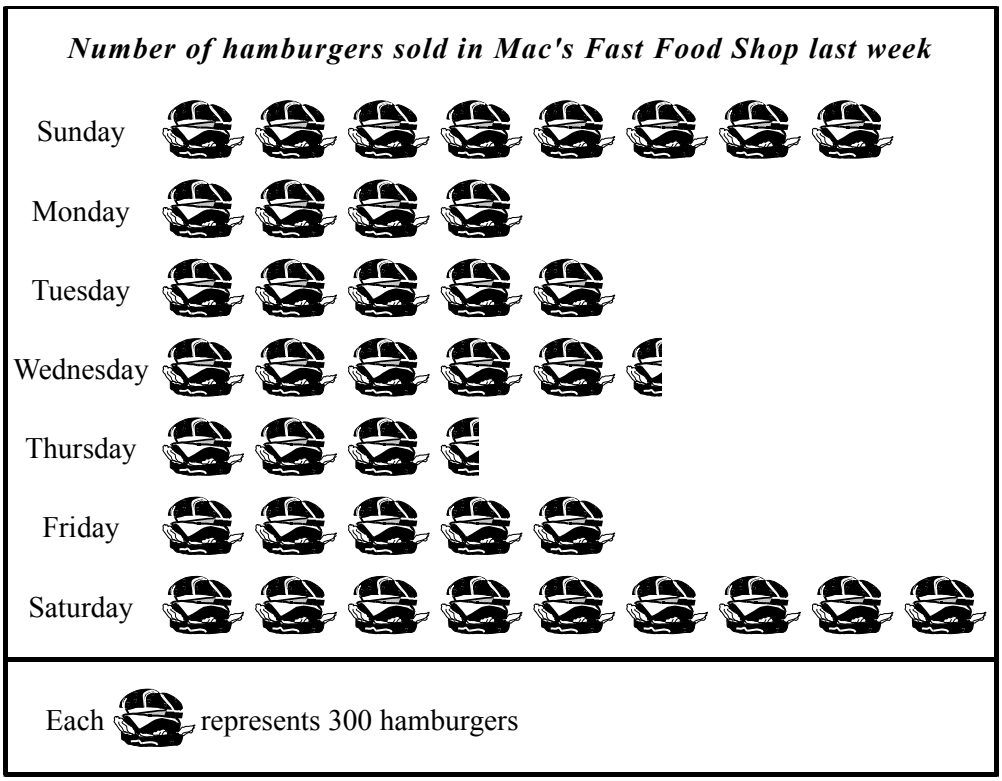
2. The following frequency distribution table shows the stock of drink in Eight-Ten Convenient Shop.

Type	***Frequency***
Lemon Tea	242
Chrysanthemum Tea	210
Grape Juice	47
Mango Juice	24
Orange Juice	48
Soya Bean Milk	115
Apple Juice	90

(a) How many boxes of drink are there?

(b) Which type of drink is stored the most? Which type is stored the least?

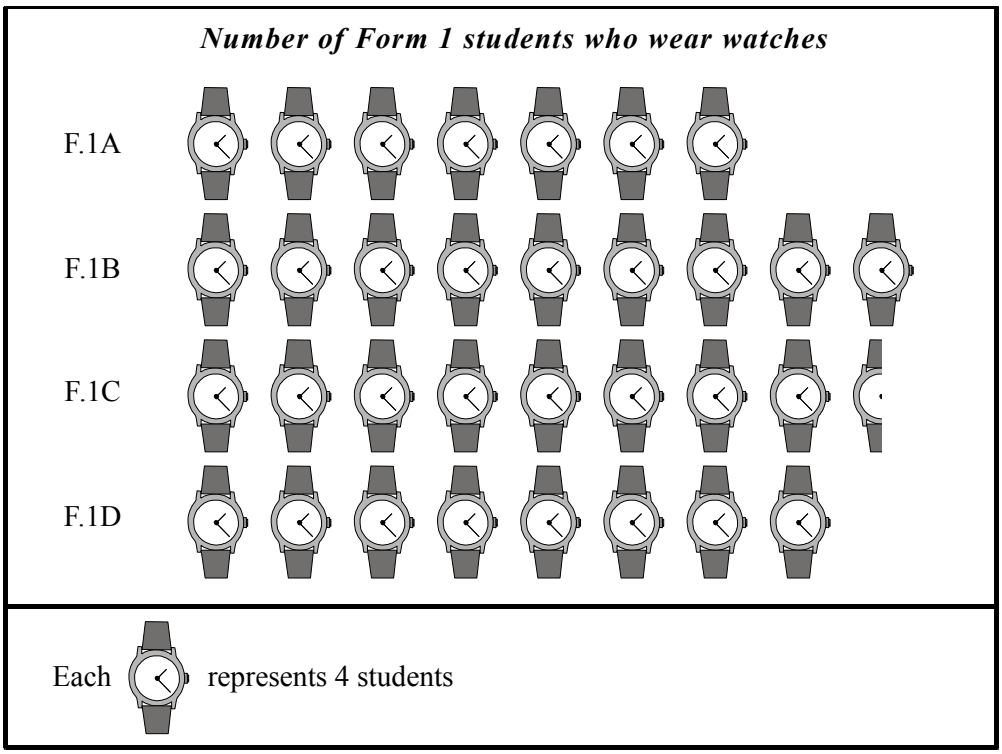
3. The following pictogram shows the number of hamburgers sold in Mac's Fast Food Shop last week.



(a) How many hamburgers were sold last Monday?

(b) On which day that the greatest number of hamburgers was sold? How many of them?

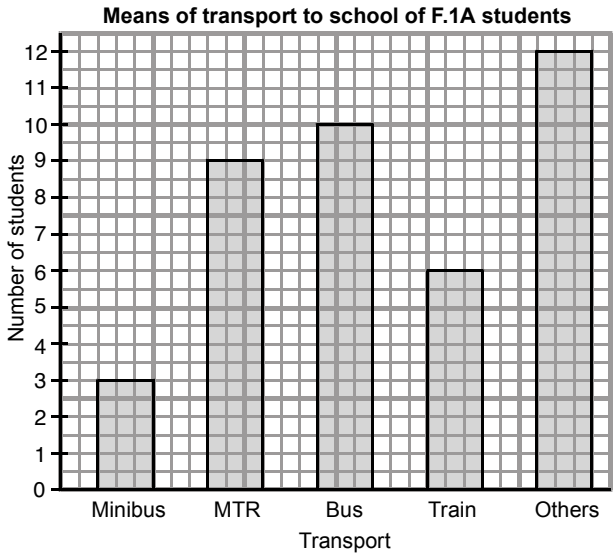
4. The following pictogram shows the number of Form 1 students who wear watches.



(a) Which class has the least number of students who wear watches? How many of them?

(b) How many students are wearing watches in Form 1?

5. The following bar chart shows the distribution of means of transport to school of F.1A students.

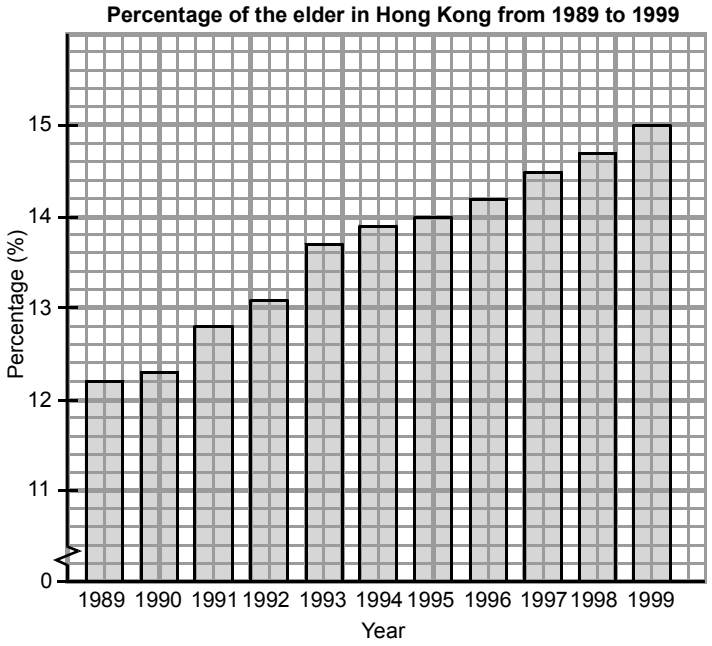


(a) How many students go to school by trains?

(b) How many students go to school by buses?

(c) Find the total number of students who go to school by minibuses, MTR, buses or trains.

6. The following bar chart shows the percentage of the elder in Hong Kong from 1989 to 1999.

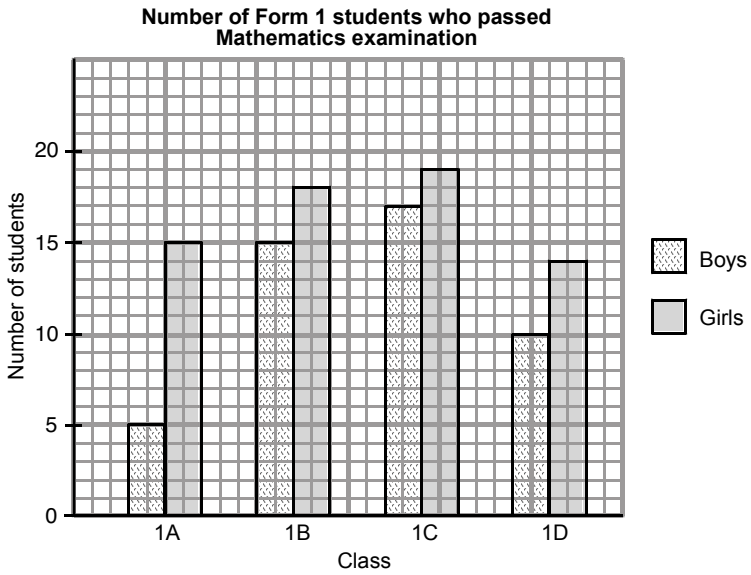


(a) In which year the percentage of the elder was the highest? What was the percentage?

(b) In which year the percentage of the elder was 14%?

(c) Did the percentage of the elder become higher and higher from 1989 to 1999?

7. The following shows the number of Form 1 students who passed Mathematics examination.



(a) How many boys in F.1B passed the examination? How many girls from the same class passed the examination?

(b) In which class that the number of boys who passed the examination was the highest? How many boys passed the examination?

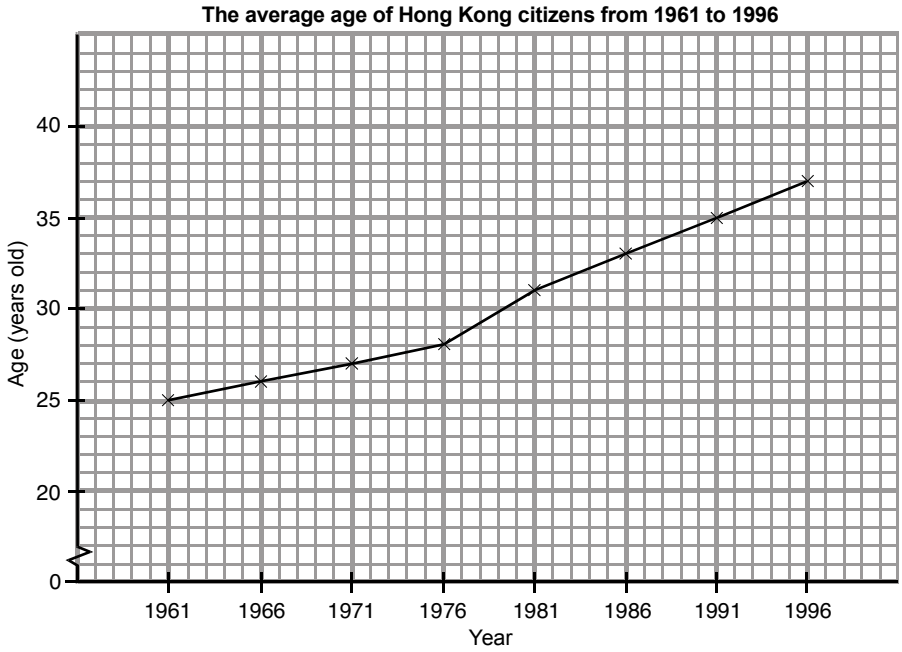
(c) Which group, boys or girls, had a higher number of students who passed in Form 1?

8. The following pie chart shows the most favourite sports of 720 youngsters.

(a) How many youngsters like swimming most?

(b) Which is the most favourite sport? How many youngsters like it most?

9. The following shows the average age of Hong Kong citizens from 1961 to 1996.



(a) What was the average age in 1991?

(b) In which year the average age was the lowest? What was the average age that year?

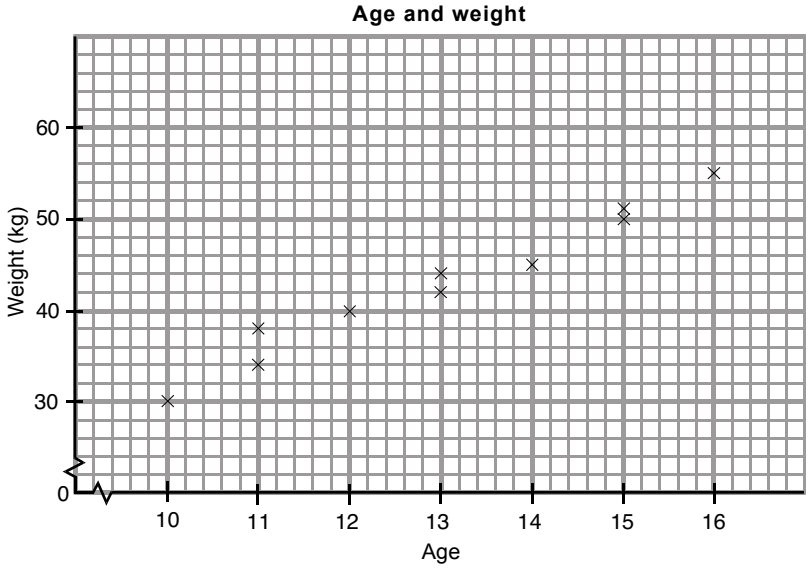
(c) Has the average age of Hong Kong citizens been increasing or decreasing since 1966?

10. The marks of 40 students in a Mathematics examination are shown below. (Full mark = 100)

52	76	73	78	67	95	64	84	83	62
76	100	99	67	42	73	69	75	38	78
76	65	98	62	63	97	76	48	92	72
59	68	71	56	72	63	53	91	93	66

Draw a stem-and-leaf diagram to present the data.

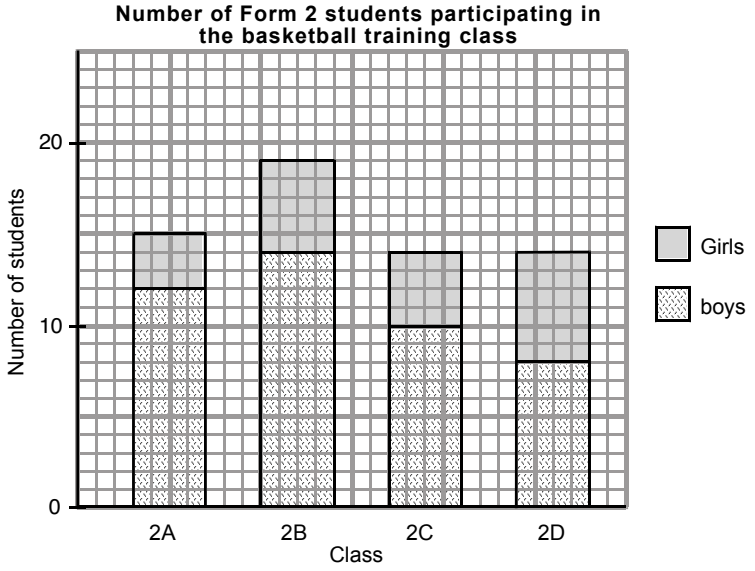
11. The following scatter diagram shows the ages and weights of 10 students.



(a) How many students weigh over 50 kg?

(b) According to the scatter diagram, when the age increases, how does the weight change, increase or decrease?

12. The following bar chart shows the number of Form 2 students participating in the basketball training class.



(a) Which class has the highest number of students participating in the basketball training class? How many of them? And how many are boys among them?

(b) Which class has the highest number of girls participating in the basketball training class? How many of them?

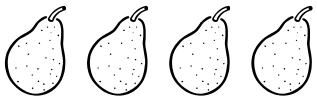
Section A(2)

13. The following pictogram shows the number of fruit sold by Healthy Store in a day before 6 p.m.

Number of fruit sold by Healthy Store in a day before 6 p.m.

Apple 

Orange 

Pear 

Watermelon 

Each picture represents 10 of the corresponding fruit

(a) Which kind of fruit was the most popular?

(b) Some kinds of fruit were not so welcome and less than 50 of them were sold. What are they?

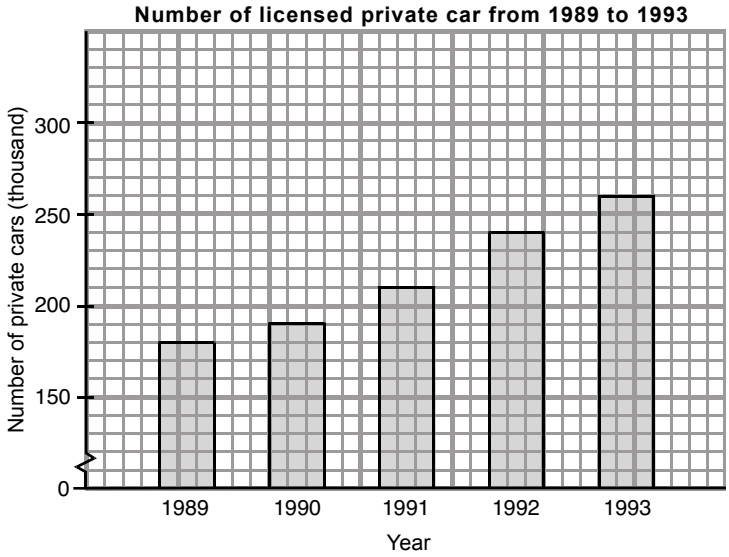
(c) The net profit of four types of fruit are shown below:

Type	***Net Profit* (each)**
Apple	$1.2
Orange	$1
Pear	$1.5
Watermelon	$8

(i) Find the total profit made that day.

(ii) The owner has to spend $500 to maintain the operation of the store everyday (excluding the cost of fruit). If there were still oranges left after 6 p.m., how many oranges should be sold in order not to lose money?

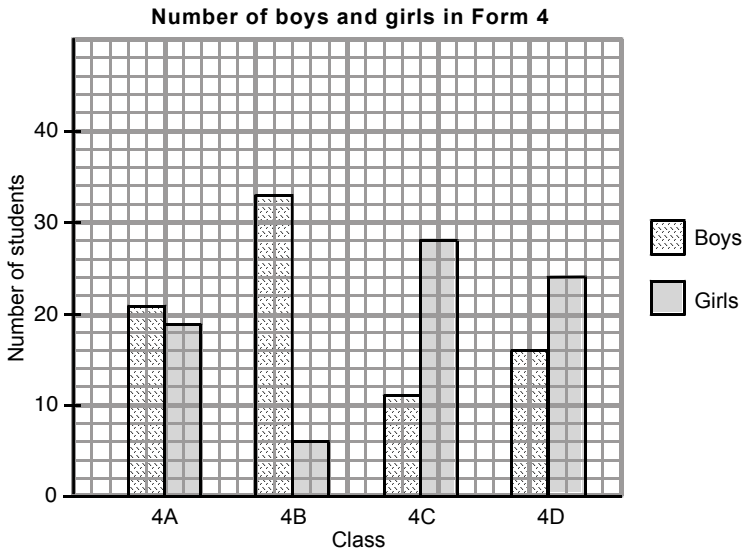
14. The following bar chart shows the number of licensed private car from 1989 to 1993.



(a) How many licensed private cars were there in 1990?

(b) Suppose the government increases the license fee when the number of private cars is over 250 000. In which year did the government increase the fee?

15. The following bar chart shows the number of boys and girls in Form 4.



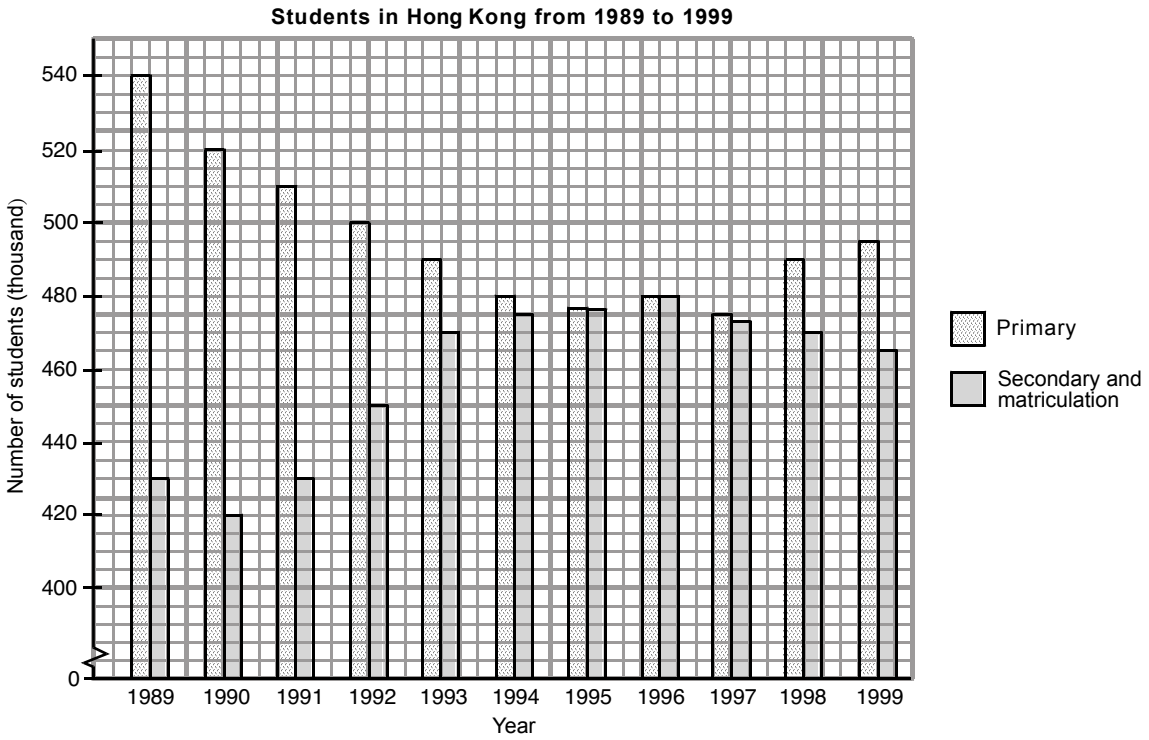
(a) Which class has the highest number of boys? How many boys are there in the class?

(b) How many girls are there in Form 4?

(c) Which group has a higher number in Form 4, boys or girls?

(d) Two classes will have PE lesson together so that the numbers of boys and girls should be about the same. How should we arrange? Why?

16. The following bar chart shows the distribution of students in Hong Kong from 1989 to 1999.



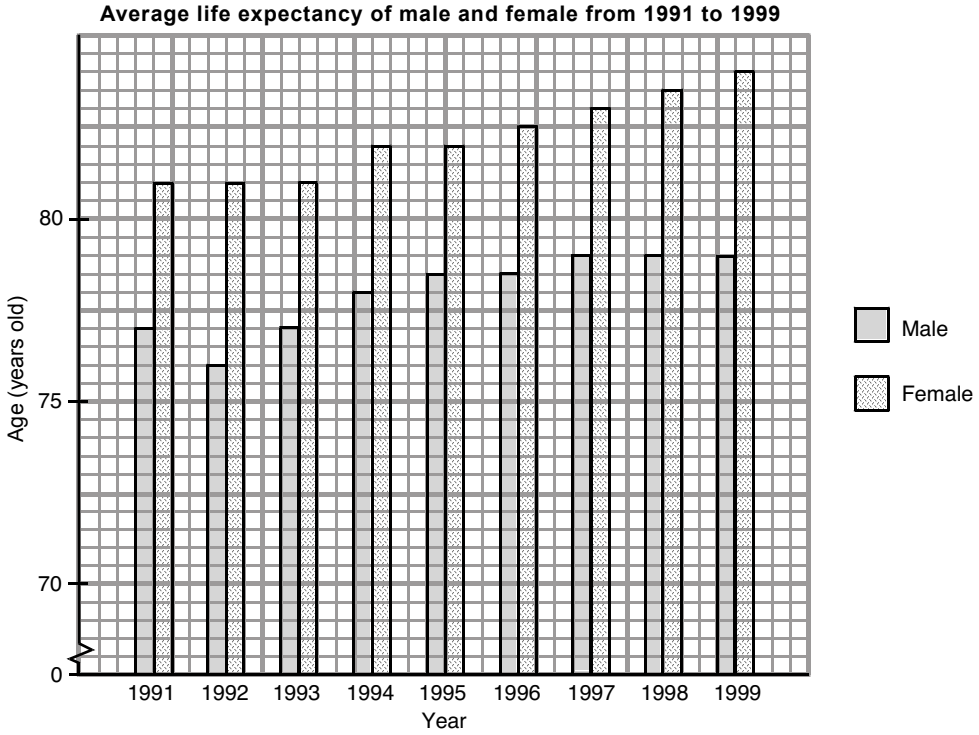
(a) How many students studied in the primary level in 1992?

(b) Which year had the highest number of students studying in the secondary and matriculation levels?

(c) The number of primary students dropped from 1989, from which year did it increase?

(d) From 1989 to 1999, which group, primary or secondary and matriculation levels, has a higher number of students?

17. The bar chart below shows the average life expectancy of male and female from 1991 to 1999.



(a) Which sex of people had longer average life expectancy, male or female?

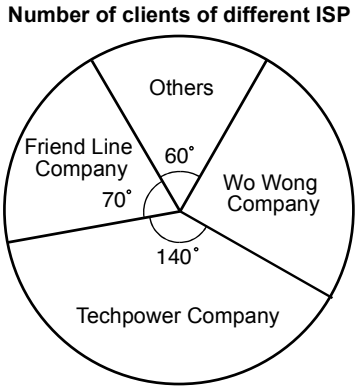
(b) In which year that male and female had the longest average life expectancy?

(c) What is the longest average life expectancy of male?

(d) What is the shortest average life expectancy of female?

(e) How many years did the average life expectancy of female be longer than that of male in 1996, 1997 and 1998 respectively ?

18. Number of clients of different ISP are shown below:



(a) Which company has the highest number of clients?

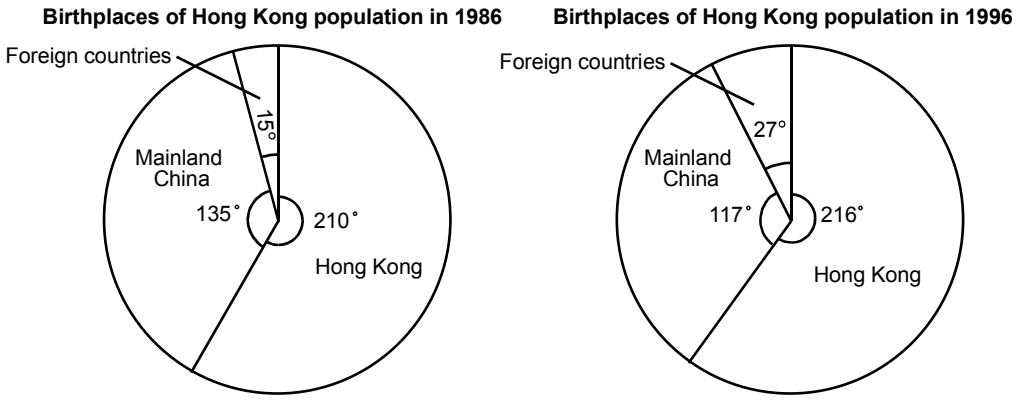
(b) If the total number of clients of Friend Line Company, Techpower Company, Wo Wong Company and others is 3.6 million, find

(i) the number of clients of Friend Line Company.

(ii) the number of clients of Wo Wong Company.

(c) The service of Friend Line Company has been improved, and it attracted 0.1 million clients from Wo Wong Company, 0.2 million clients from Techpower Company and 50 000 clients from other companies. Draw a pie chart to present the new distribution.

19. The following pie charts show the distribution of the birthplaces of Hong Kong population in 1986 and 1996.



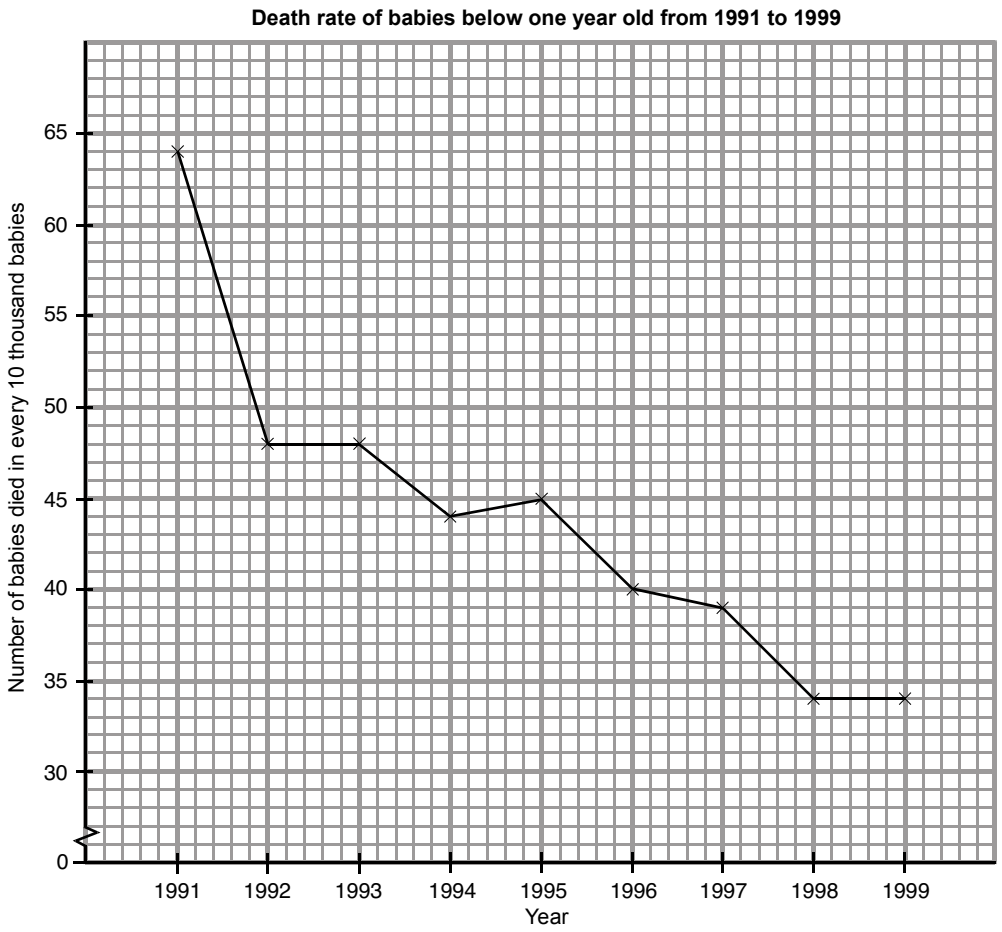
Suppose the population of Hong Kong was 5.4 million in 1986 and 6.4 million in 1996.

(a) How many people were born in Hong Kong in 1986?

(b) Which year had more people born in Mainland China?

(c) How many Hong Kong people were born in foreign countries in 1996? By how many people did it more than that of 1996?

20. The following graph shows the death rate of babies below one year old from 1991 to 1999. (The vertical axis shows the number of babies died in every 10 thousand babies.)



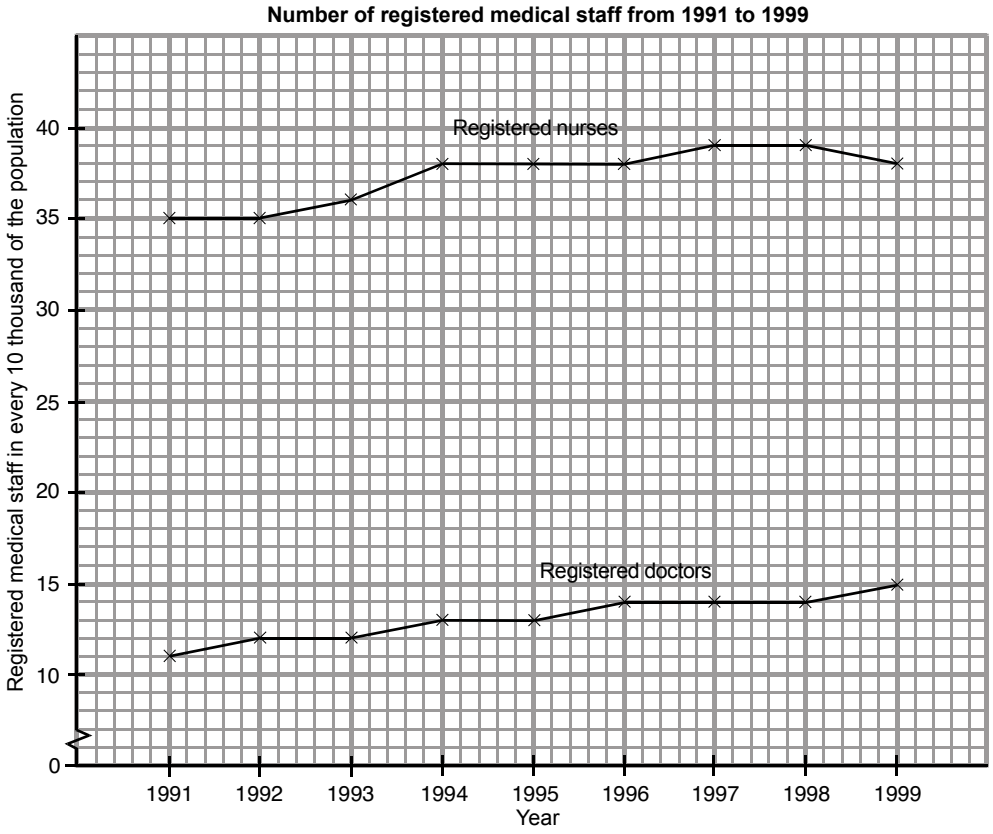
(a) In 1996, how many babies died in every 10 thousand babies?

(b) Describe the trend of the death rate of babies from 1991 to 1999.

(c) Which of the following is the most probable number of babies died in every 10 thousand babies in 2000. Explain briefly.

(i) 50 **(ii)** 40 **(iii)** 30

21. The following graph shows the number of registered medical staff in every 10 thousand of the population.



(a) In 1998, how many people out of 10 thousand of the population were registered nurses?

(b) In which three successive years did the percentage of registered nurses stay unchanged?

(c) Describe the trend of the number of registered nurses from 1991 to 1999.

(d) Describe the trend of the number of registered doctors from 1991 to 1999.

(e) Which of the following is the most probable number of registered doctors out of 10 thousand of the population in 2000?

(i) 16 **(ii)** 13 **(iii)** 10

22. The following stem-and-leaf diagram shows the marks of F.1C students in a Mathematics test (Full mark = 50).

Marks of Mathematics test of F.1C students

Stem (10 marks)	Leaves (1 mark)
0	4 9
1	2 8
2	0 3 5 5 7 8 8 9 9 9
3	0 1 2 2 2 3 4 4 4 5 6 6 7 8
4	1 1 1 2 3 3 4 5 5 8
5	0 0

(a) How many students get full mark?

(b) Find the total number of students in F.1C.

(c) How many students get 30 to 39 marks?

(d) If the passing mark is 25, find the number of students failed.

23. A company wanted to hire a secretary. It organized a typing speed test for the candidates. The following table shows the number of words typed by the candidates in 1 minute.

Number of words typed in 1 minute

Stem (10 words)	Leaves (1 word)
4	8
5	2 7
6	6 8 9
7	0 1 3 5 6 7 8 8 8 9 9 9 9
8	0 2 2 2 3 4 4 6 6 7 8
9	1 1 1 2 3 3
10	0 2

(a) How many candidates were there in total?

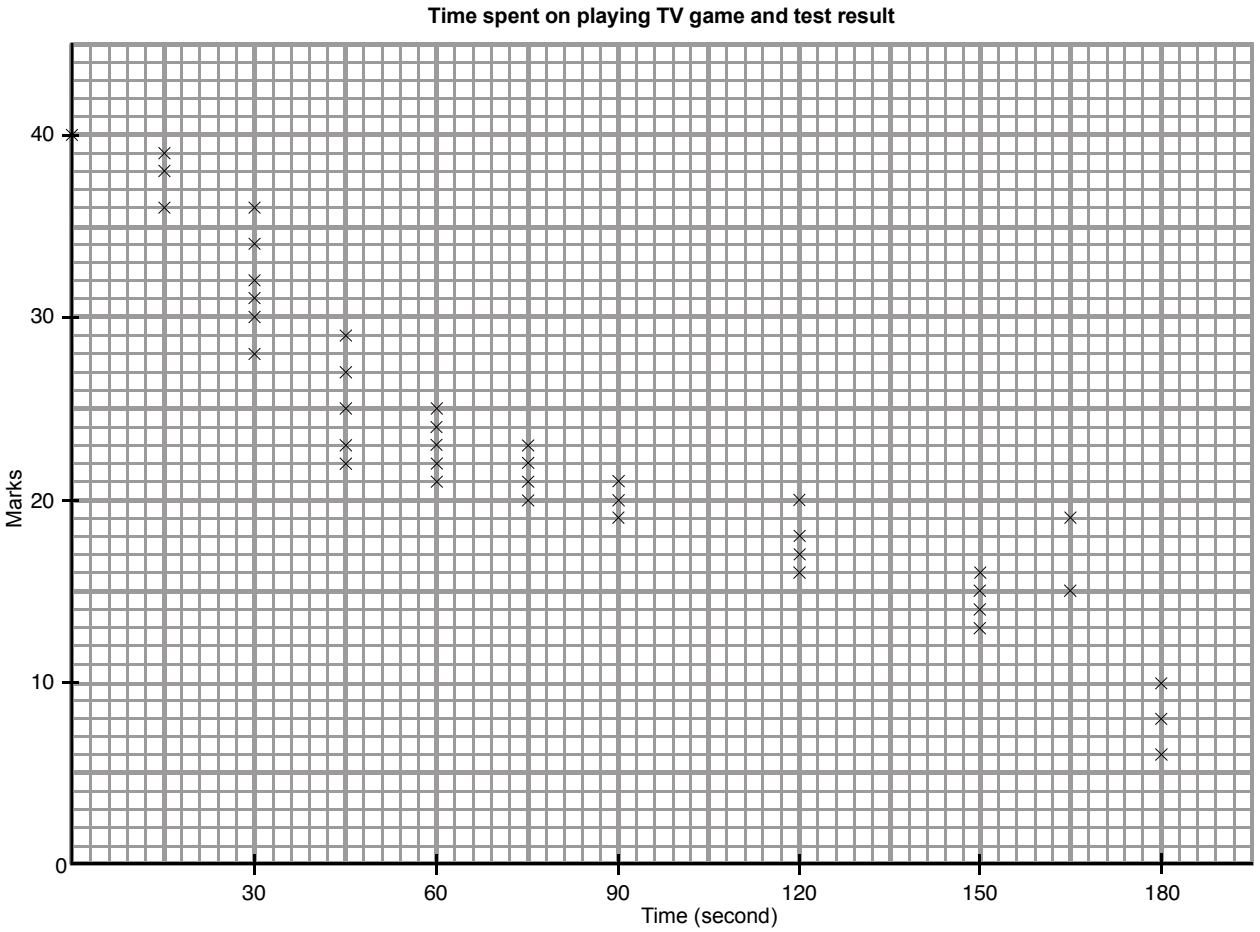
(b) How many words did the slowest one type in 1 minute?

(c) How many candidates could type 100 words or above in 1 minute?

(d) If the candidates should type over 70 words in 1 minute to meet the requirement, how many candidates were qualified?

(e) If the fastest 10 candidates had to attend an interview, how many words did the slowest one type among these 10 candidates?

24. The following shows the time spent on playing TV game on the eve of a Mathematics test and the result of the test (Full mark = 40).



(a) How did the playing time generally affect the test result?

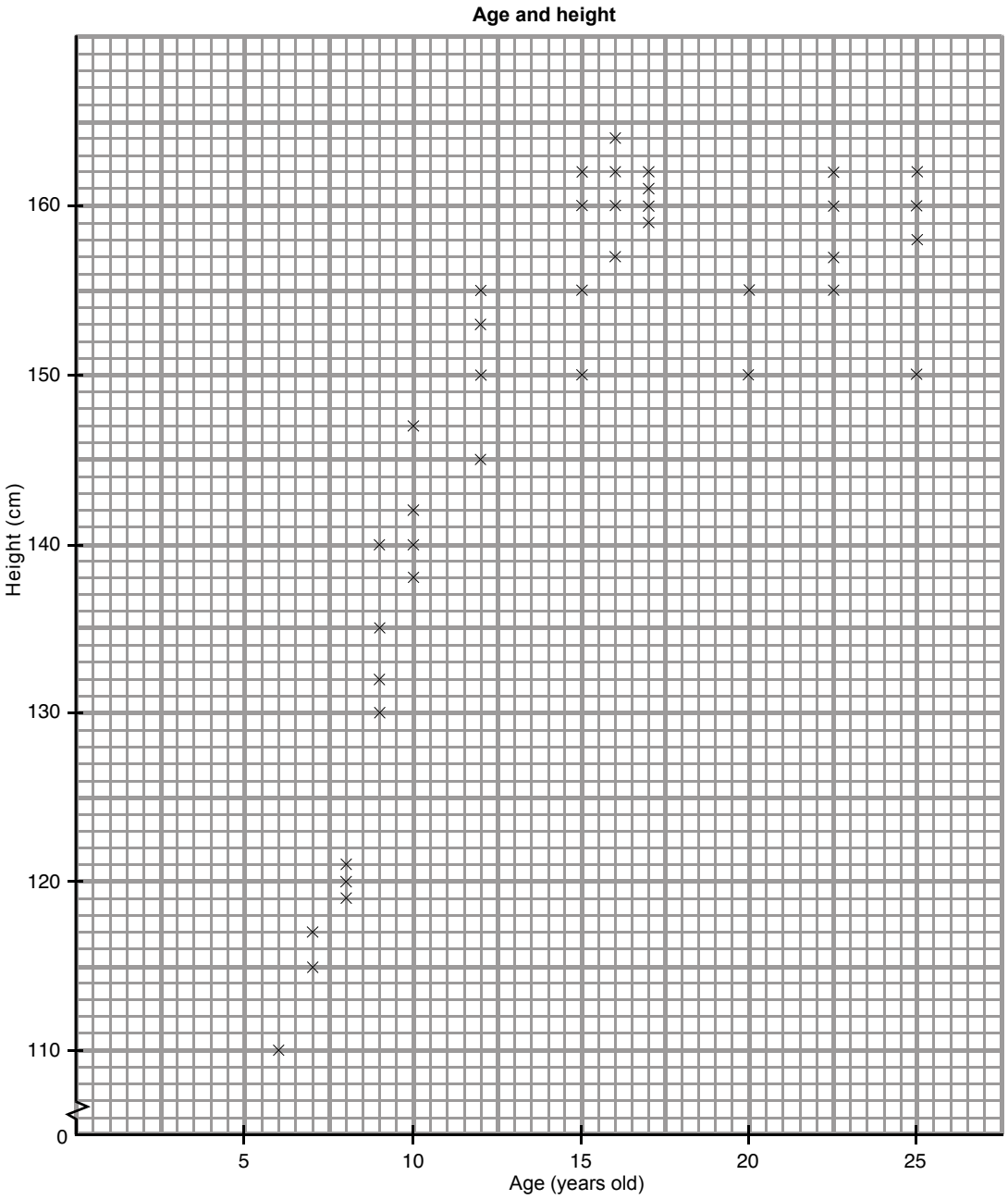
(b) If the passing mark was 20, find the number of students who failed.

(c) How many students didn't play TV game on the eve of the test? What were their marks?

(d) What was the lowest mark? How long did the boy/girl taking that mark spend on playing TV game?

(e) Was it ***a must*** that playing longer brings lower mark?

25. The following shows a group of female interviewees' age and height.



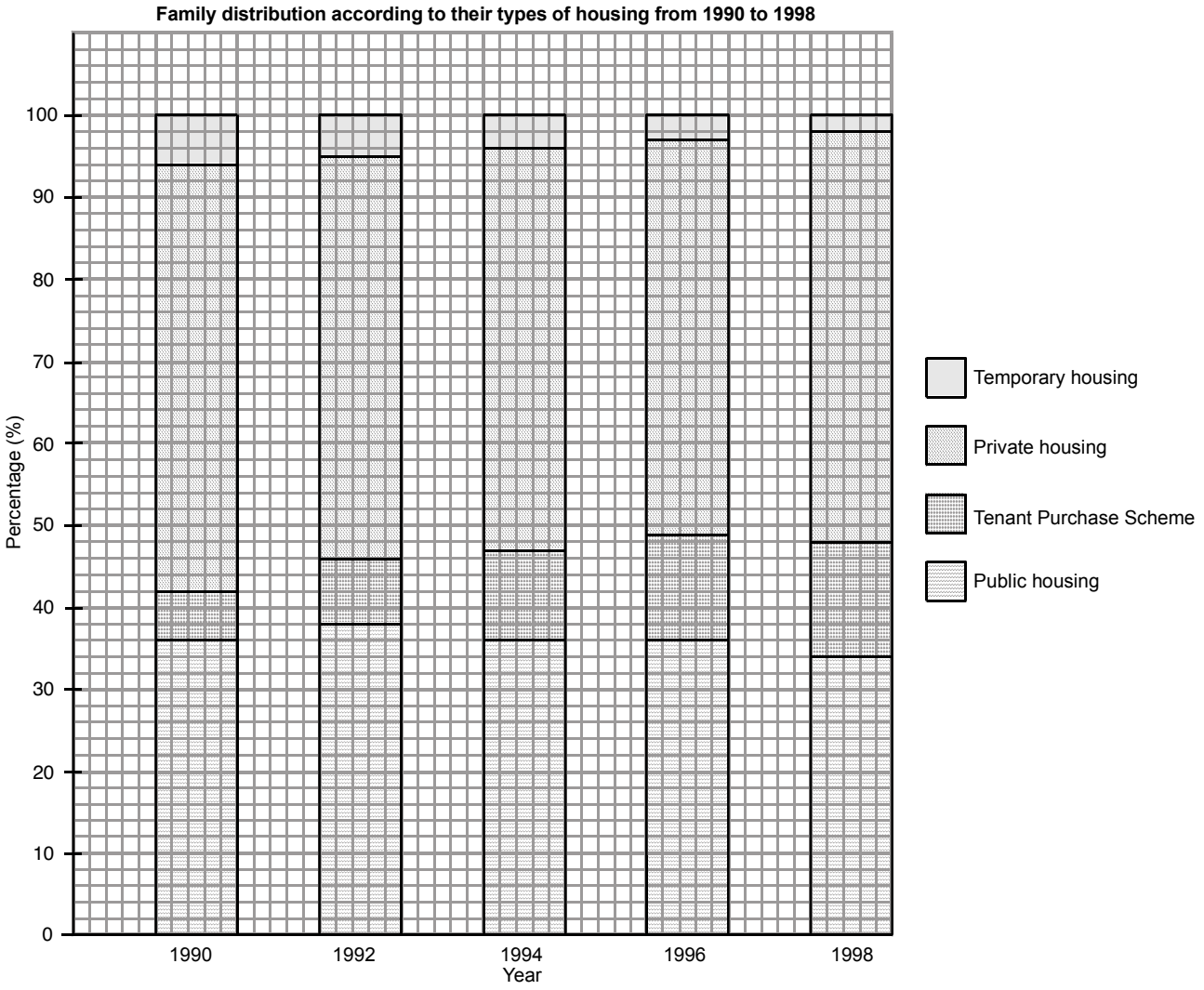
(a) What is the age of the eldest and the youngest interviewees respectively?

(b) What is the age of the tallest interviewee?

(c) Find the relationship between the age and height of female aged under 15?

(d) In general, how does the height change with the age?

26. The figure below shows the family distribution according to their types of housing from 1990 to 1998.



(a) In which year the percentage of families living in public housing was the highest?

(b) In which year the percentage of families living in private housing was the highest?

(c) Describe the trend of family distribution according to the types of housing.

27. Which type of statistical diagrams reflect the following situations best?

(a) Chung Tai Company spent money on 6 main categories. Present the relationship between the expenditure in the 6 categories respectively and the total expenditure.

(b) Present the relationship between the time spent on watching TV in a week and the result of the examination of a class (40 students).

(c) Present the distribution of marks of a class (30 students).

28. Is it suitable to use a pie chart to present the change of Heng Seng Index in the previous 10 days? Why? If not, which type of statistical diagrams is more suitable to present it?

29. The following table shows the distribution of means of transport taken by the students of Ho Yum Secondary School.

MTR	249
Bus	201
On foot	483
Others	67

(a) Which type of statistical diagrams should be use to present the data, such that the most common way to go to school is on foot?

(b) Which type of statistical diagrams should be use to present the data, such that the percentage of students going to school by MTR can be shown?

Section B

30. Compare the functions and advantages of using bar charts, pie charts, broken line graphs, stem-and-leaf diagrams and scatter diagrams.