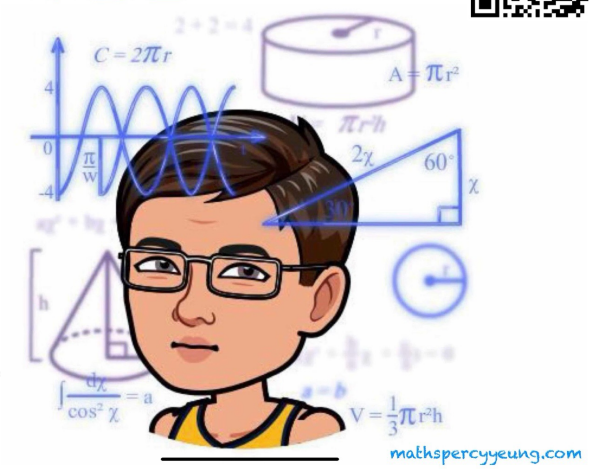
97807453
mathspercyyeung



S1

Mathematics

Exam Past Paper (1314–2223)

Question Book

Ch12 Introduction to Statistics and Statistical Charts

UCCKE F1 Ch12 Introduction to Statistics and Statistical Charts

Ch12 Introduction to Statistics and Statistical Charts

[1314 S.1 3rd Exam MC Q9]

1. Mr. Fung recorded the seasonal revenue (in million $) of his company last year.

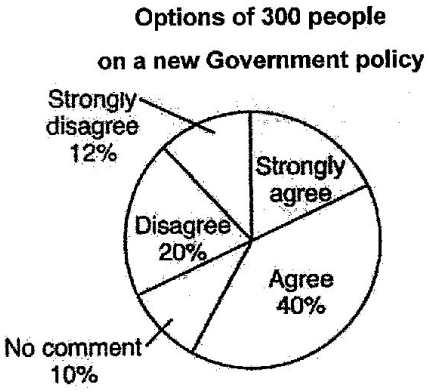
Season	1st	2nd	3rd	4th
Revenue	42	36	33	25

Which of the following is the best to show the change in revenue last year?

A. Broken line diagram
B. Pie chart
C. Scatter diagram
D. Stem-and-leaf diagram

[1314 S.1 3rd Exam SQ Q3]

2. The pie chart below shows the opinions of 300 people on a new Government policy.



How many people strongly disagree?

(2 marks)

[1314 S.1 3rd Exam Enhanced Question Q5]

3. Table 1 shows the highest temperatures in City A and City B in the 12 months in 2013.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
City A (°C)	10	5	8	15	18	26	34	40	42	36	28	17
City B (°C)	33	45	36	24	14	5	3	4	5	8	10	22

Table 1

(a) Use the data provided in table 1, complete the following back-to-back stem-and-leaf diagram.

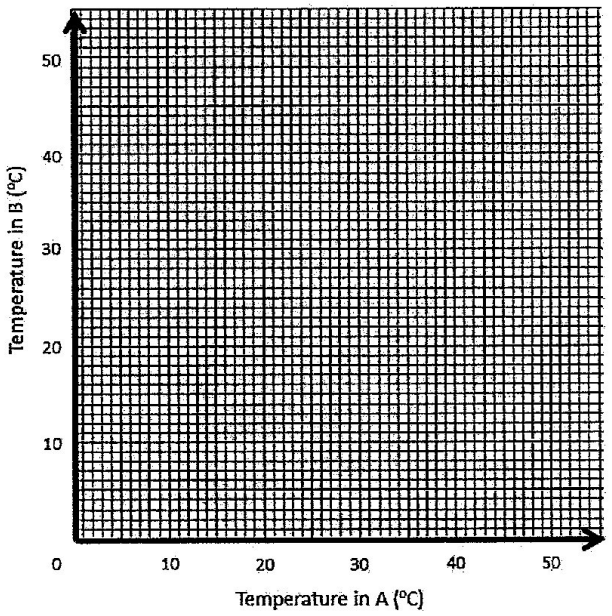
(2 marks)

The highest temperatures in 2 cities during each of the 12 months in 2013

City A Leaf (1 °C)					Stem (10 °C)	City B Leaf (1 °C)				
					0					
					1					
					2					
					3					
					4					

(b) (i) Use the data provided in table 1, construct a scatter diagram.

The highest temperatures in 2 cities during each of the 12 months in 2013



(ii) What is the relationship between the two sets of data? (3 marks)

[1415 S.1 3rd Exam MC Q1]

4. The frequency distribution table in figure 1 shows the number of children in 50 families.

Number of children	Tally
0	𝍸 𝍸 𝍸 𝍸 ///
1	𝍸 𝍸 ////
2	𝍸 //
3 or above	𝍸 /

Figure 1

What is the percentage of families having more than 2 children?

A. 12%
B. 14%
C. 26%
D. 30%

[1415 S.1 3rd Exam MC Q2]

5. The pie chart in figure 2 shows the favourite kinds of music of 540 students.

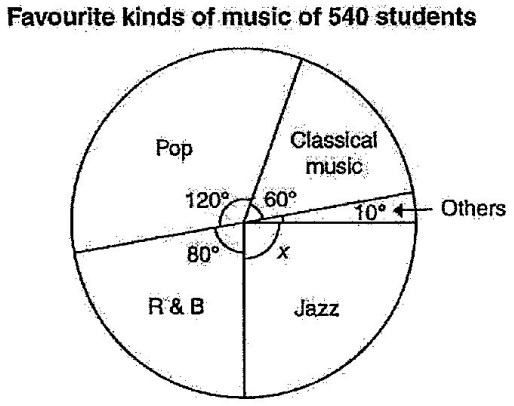


Figure 2

The number of students like Jazz is

A. 90.
B. 100.
C. 120.
D. 135.

[1415 S.1 3rd Exam Enhanced Question Q5]

6. Table 1 shows the highest and the lowest temperature of each month in HK in 2014.

Month	1	2	3	4	5	6	7	8	9	10	11	12
Highest Temperature (°C)	25	27	30	31	32	33	34	35	33	32	28	24
Lowest Temperature (°C)	10	12	13	18	17	25	24	24	23	20	14	6

Table 1

(a) In figure 19, the dotted line represents the highest temperature in the above data. Draw a broken-line to represent the lowest temperature in 2014 in figure 19.

(2 marks)

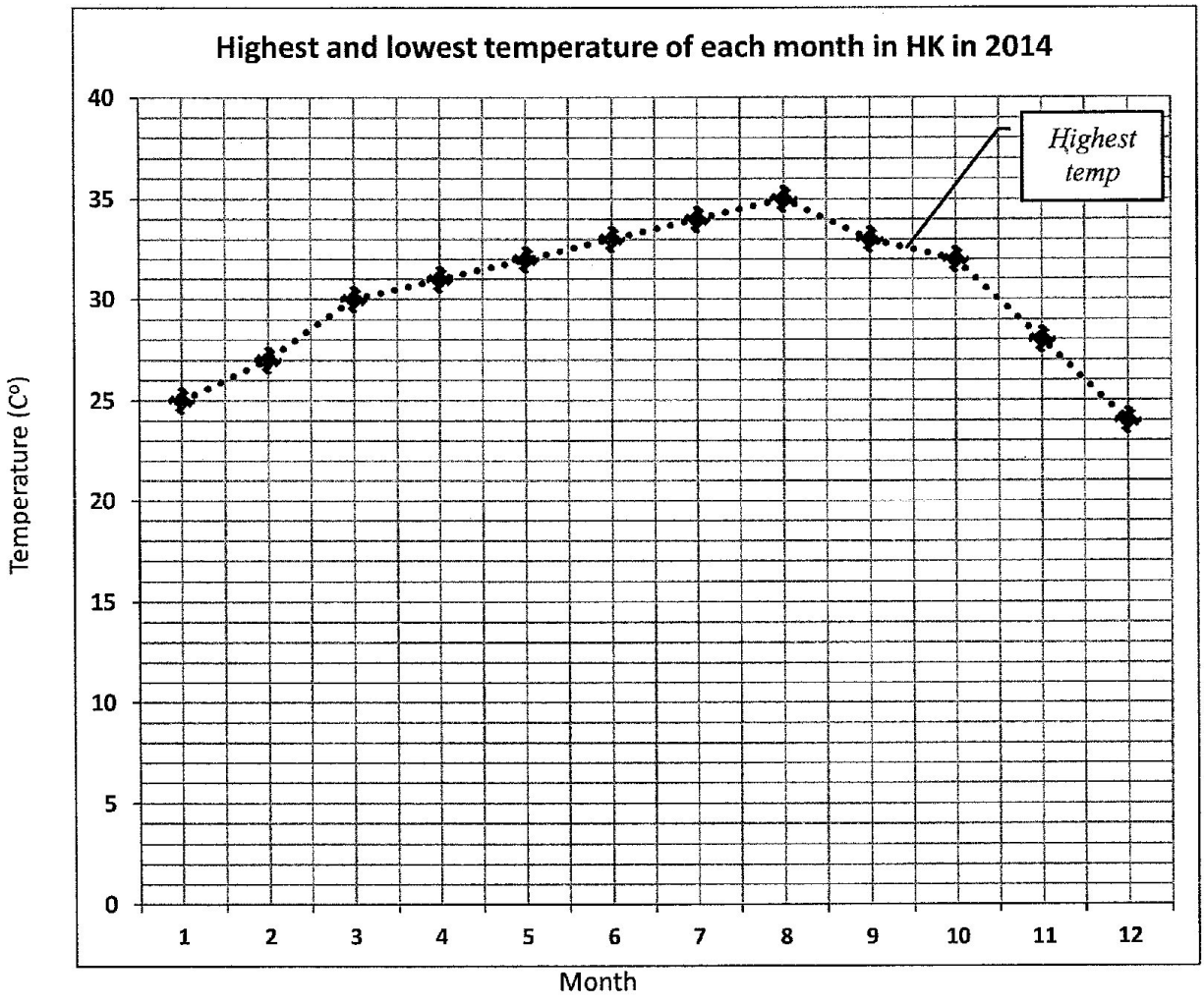


Figure 19

(b) Complete the back-to-back stem-and-leaf diagram in figure 20 to present the data in table 1.

(3 marks)

Highest and lowest temperature in HK in 2014

Highest temperature Leaf (1°C)								Stem (10°C)	*Lowest temperature* Leaf (1°C)							

Figure 20

[1516 S.1 3rd Exam MC Q8]

7. To show the changes in temperature of a city in one day, which of the following statistical graphs should be used?

A. Broken-line graph B. Pie chart

C. Scatter diagram D. Stem-and-leaf diagram

[1516 S.1 3rd Exam MC Q9]

8. The bar chart in Figure 3 shows the distribution of the results of 100 students in an examination. Find the percentage of students getting grade D or E.

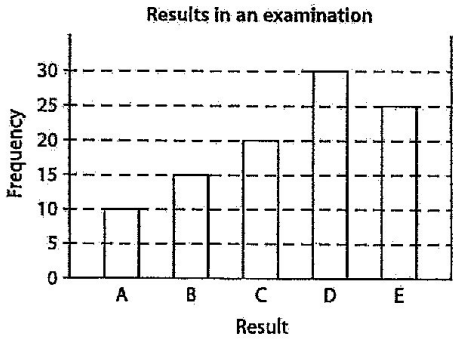


Figure 3

A. 20% B. 25%

C. 45% D. 55%

[1516 S.1 3rd Exam SQ Q4]

9. The daily time (in minutes) for Mrs. Cheng travelling from home to school in last 20 days are as follows:

29	37	24	26	26	25	39	32	33	36
30	22	34	29	26	23	33	31	33	27

Complete the frequency distribution table below for the above data.

(3 marks)

Time (minutes)	Tally	Frequency
20 – 24		

[1516 S.1 3rd Exam SQ Q5]

10. The pie chart in Figure 7 shows the grades obtained by 216 students in a test.

(a) What percentage of these students obtain grade A in the test? (2 marks)

(b) Students get grade D or E have to take a re-test, how many students have to take the re-test?

(2 marks)

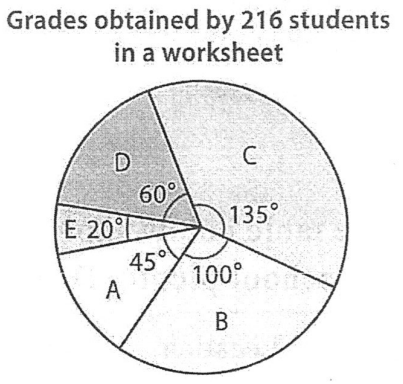


Figure 7

[1516 S.1 3rd Exam SQ Q6]

11. The stem-and-leaf diagram in Figure 8 shows the prices of books Peter has.

Prices of books Peter has

Stem($100)	*Leaf($1)*									
0	80	85	90	90	90	95				
1	10	20	20	50	80	80	85			
2	00	20	35	50	50	65	80	80	90	90
3	00	00	12	50	50	55	85			

Figure 8

(a) How many books does Peter have? (1 mark)

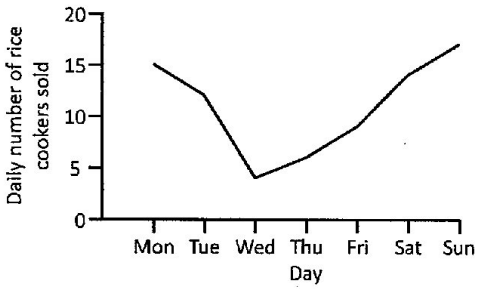
(b) Which stem do most of the prices of books fall into? (1 mark)

(c) How many books are with prices above $200? (1 mark)

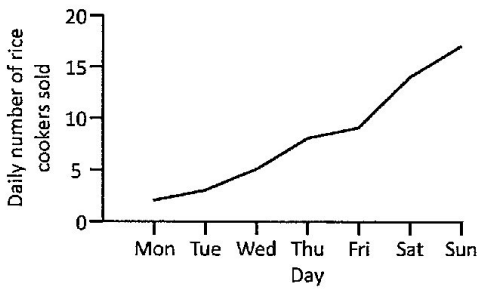
[1617 S.1 3rd Exam MC Q5]

12. In an electrical store, the daily number of rice cookers sold first increased and then decreased over a week. Which of the following is a possible graph presenting the daily sales of the rice cookers?

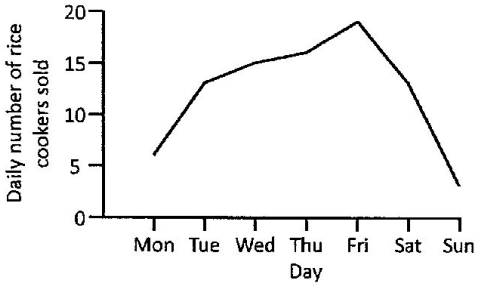
A.



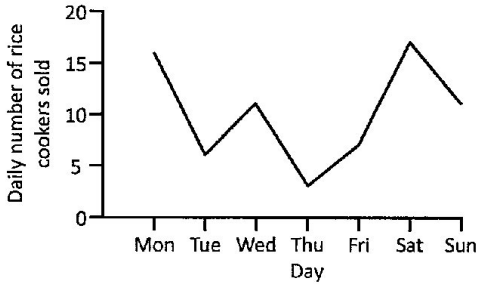
B.



C.



D.



[1617 S.1 3rd Exam SQ Q18]

13. The amount of money spent by some visitors at Disneyland is shown below.

$620	$890	$700	$650	$840	$720	$1030
$910	$730	$730	$580	$750	$910	$780

(a) Present the data above in a stem-and-leaf diagram. (2 marks)

The amount of money some visitors spent at Disneyland

Stem ($100)	Leaf ($10)

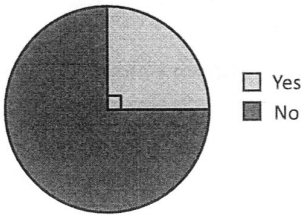
(b) How many visitors spend less than $800 at Disneyland? (1 mark)

[1718 S.1 3rd Exam MC Q9]

14. After the presentation of the policy address, an organisation asked 80 people the following question:

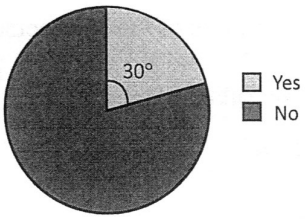
Are you satisfied with the policy address?

The responses of them are shown in the following pie chart.

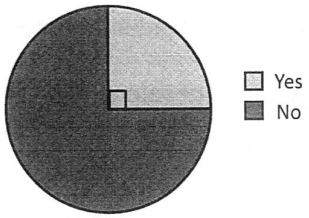


If 40 more people are interviewed, in which 20 people answer 'yes' and 20 people answer 'no', which of the following pie chart presenting the responses of all the 120 interviewees?

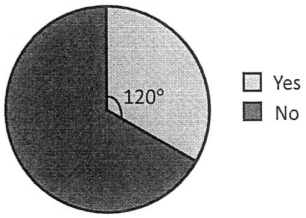
A.



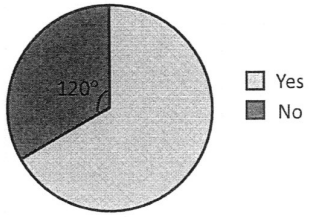
B.



C.



D.

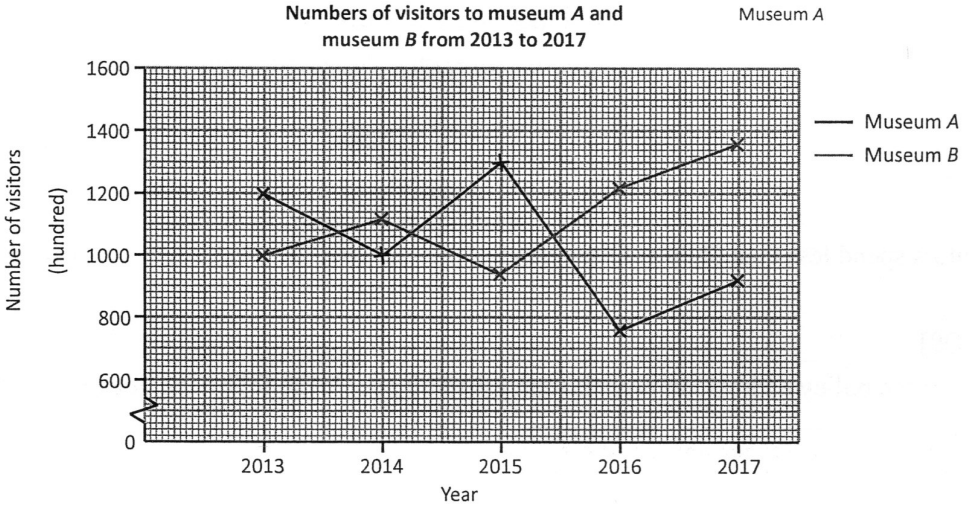


[1718 S.1 3rd Exam MC Q10]

15. The following broken-line graph shows the numbers of visitors to museum *A* and museum *B* from 2013 to 2017. According to the graph, which of the following are true?

I. The decrease in the number of visitors to museum *A* from 2015 to 2016 is the greatest.
II. The number of visitors to museum *B* fluctuated but increased as a whole.
III. The number of visitor to museum *B* is more than that of museum *A* in 2015.

A. I and II only
B. I and III only
C. II and III only
D. I, II and III



[1718 S.1 3rd Exam FQ Q18]

16. The monthly salaries of salespersons in two supermarkets are shown below.

Supermarket *A*

$9 400 $10 300 $10 700 $9 800 $11 500 $10 600 $10 900 $9 800

Supermarket *B*

$10 300 $11 800 $12 300 $11 200 $12 300 $11 000 $11 400 $11 600

(a) Draw a back-to-back stem-and-leaf diagram to present the monthly salaries of the salespersons. (2 mar

The monthly salaries of salespersons in two supermarkets

Supermarket *A*		Supermarket *B*
Leaf ($100)	Stem ($1000)	Leaf ($100)

(b) In general, the salespersons in which supermarket have higher monthly salaries? Explain your answer. (1 mark)

[1819 S.1 3rd Exam MC Q9]

17. The following stem-and-leaf diagram shows the test marks of 20 students. Some of the marks are missing and use 'X' to represent.

Test marks of 20 students

Stem (10)	Leaf (1)
4	0 X X
5	7
6	X 2 X 9
7	X 0 1
8	X 1 X 3
9	X X 2 X 8

How many students get at least 70?

A. 12
B. 11
C. 10
D. Cannot be determined

[1819 S.1 3rd Exam BQ Q19]

18. The following shows the Mathematics test marks of the students in Class 1B.

41 52 41 39 59 64 45 51 38 54

56 47 45 48 39 42 52 50 66 49

(a) The Mathematics test marks of the students in Class 1A are filled in the back-to-back stem-and-leaf diagram below. Complete the back-to-back stem-and-leaf diagram to represent the above data.

Mathematics Test Marks of the Students in Class 1A and Class 1B

Class 1A							Class 1B	
					Leaf (1)	Stem (10)	Leaf (1)	
					8	3		
	9	8	7	2	1	0	4	
	6	6	5	4	3	2	5	
7	6	6	5	3	2	0	6	

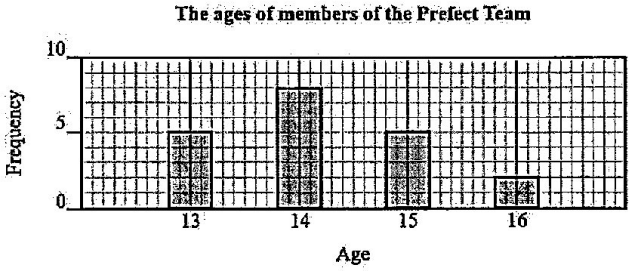
(b) (i) The best 5 students in each class will get a grade A. Find the lowest test mark of the students in Class 1B with grade A.

(ii) Which class perform better? Explain your answer.

(3 marks)

[1920 S.1 Exam MC Q19]

19. The bar chart below shows the age distribution of the members of the Prefect Team.



Find the percentage of members of the Prefect Team whose ages are 15 or above.

A. 5%
B. 7%
C. 25%
D. 35%

[1920 S.1 Exam BQ Q9]

20. The scores obtained by a group of athletes in a figure skating competition are shown below.

12 7 10 12 8 13 8 14 14 7

Complete the stem-and-leaf diagram below to present the above data. (2 marks)

The scores obtained by a group of athletes in a figure skating competition

Stem (10)	Leaf (1)						

[1920 S.1 Exam IQ Q14]

21. Figure 7 shows a pie chart representing the nationalities of the staff members in a company.

Nationalities of staff members in a company

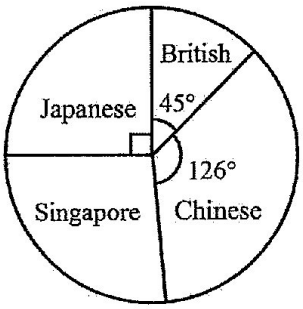


Figure 7

(a) It is known that the number of staff members who are British is 15, find the total number of staff members. (2 marks)

(b) Find number of staff members who are Singaporean. (2 marks)

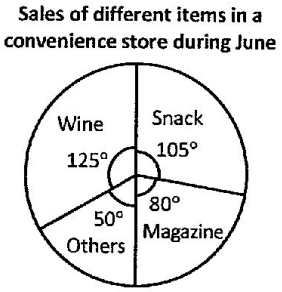
[2021 S.1 Final Exam BQ Q9]

22. The pie chart below shows the distribution of the sales of different items in a convenience store duri June.

(a) Which item had the highest sales in June?

(b) If the total sales of the store was \$108 000 in June, find the sales of Magazine in June.

(2 marks)



[2021 S.1 Final Exam IQ Q15]

23. The stem-and-leaf diagram below shows the distribution of the numbers of new subscribers of a YouTu channel in 30 days.

Numbers of new subscribers of a YouTube channel in 30 days

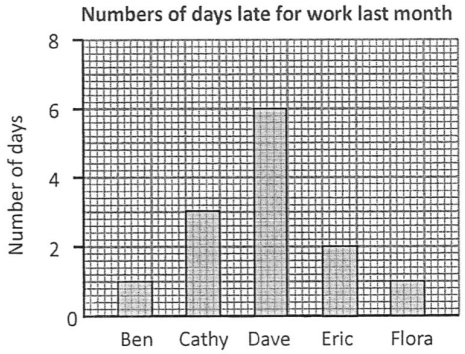
Stem (tens)	Leaf (units)
0	7 8
1	1 2 4 5 6 *a* 7 8 9
2	0 0 0 0 2 5 6
3	0 2 3 3 4 4 4 4
4	0 1 2 *b*

(a) Find the possible value(s) of a. (1 mark)

(b) It is known that the difference between the greatest number and the least number of new subscribers 40. Find the value of b. (2 marks)

[2021 S.1 Final Exam MC Q19]

24. The bar chart below shows the distribution of the numbers of days that Ben, Cathy, Dave, Eric and Flora were late for work last month.



There were 25 working days last month. Find the percentage of working days that Cathy was late for work.

A. 4%

B. 8%

C. 12%

D. 24%

[2021 S.1 Final Exam MC Q20]

25. The back-to-back stem-and-leaf diagram below shows the distribution of the test scores (in marks) of students in two groups *A* and *B*.

Test scores (in marks) of students in two groups *A* and *B*

Group *A*		Group *B*
Leaf (units)	Stem (tens)	Leaf (units)
7 2 0	0	5 7 8
8 3 0	1	4 7
	2	6
0	3	1 4

If the passing score of the test is 15 marks, what is the passing rate?

A. 20%

B. 30%

C. 40%

D. 50%

[2122 S.1 Final Exam BQ Q10]

26. The following stem-and-leaf diagram shows the results of a quiz taken by 20 students.

Quiz scores of 20 students

Stem (10)	Leaf (1)
3	x 7
4	3 y 5 7
5	2 5 8 9
6	1 4 6 8 9
7	0 2 5 6 x

(a) Write down all possible values of y. (1 mark)

(b) Write down the difference between the highest and the lowest score. (1 mark)

[2122 S.1 Final Exam IQ Q16]

27. The following data show the weights (in kg) of 16 smartphones.

0.12	0.46	0.27	0.19	0.45	0.50	0.16	0.31
0.43	0.02	0.36	0.11	0.34	0.14	0.25	0.27

(a) Complete the frequency distribution table below. (1 mark)

Weight (kg)	**Tally**	**Frequency**
0.01 – 0.10		
0.11 – 0.20		
0.21 – 0.30		
0.31 – 0.40		
0.41 – 0.50		

(b) Find the percentage of phones that weight more than 200 g. (2 marks)

[2122 S.1 Final Exam MC Q19]

28. Which of the following data is suitable to be presented using stem-and-leaf diagrams?

A. Blood types of 20 people.

B. Gender distribution in a city among different age groups.

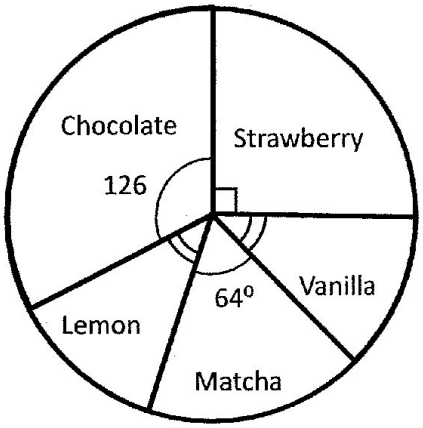
C. Numbers of pages in 40 books.

D. Distances between each planet and the sun in the solar system.

[2122 S.1 Final Exam MC Q20]

29. An ice cream shop earned $900 in June. The following pie chart shows the distribution of the June income generated according to different ice cream flavours.

Distribution of June income according to flavours



How much was earned from selling lemon ice cream?

A. $200

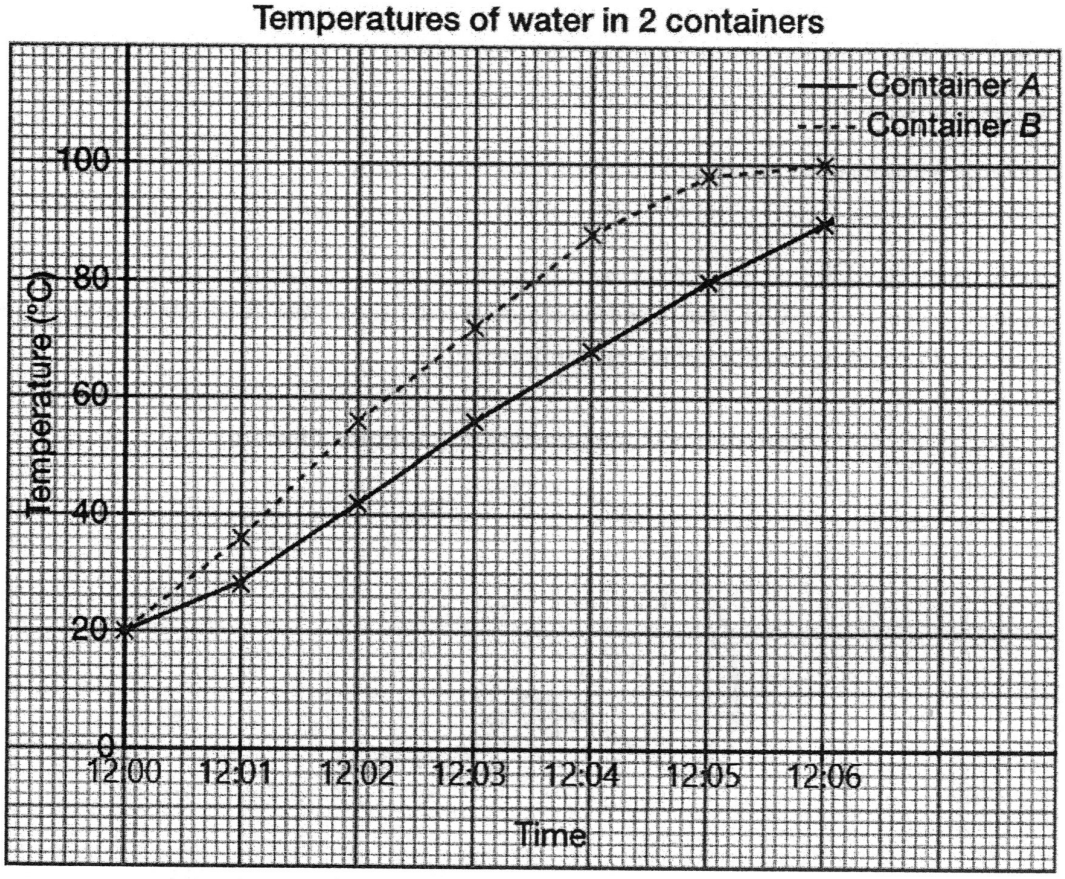
B. $100

C. $60

D. $30

[2223 S.1 Final Exam AQ Q8]

30. The following broken line graph shows the temperatures (in °C) of water in 2 containers during heating.



(a) Write down the difference in the temperatures of water in the containers at 12:05. (1 mark)

(b) During which 1-minute interval, was the increase in temperature of water in container *B* the smallest? What was the increase? (2 marks)

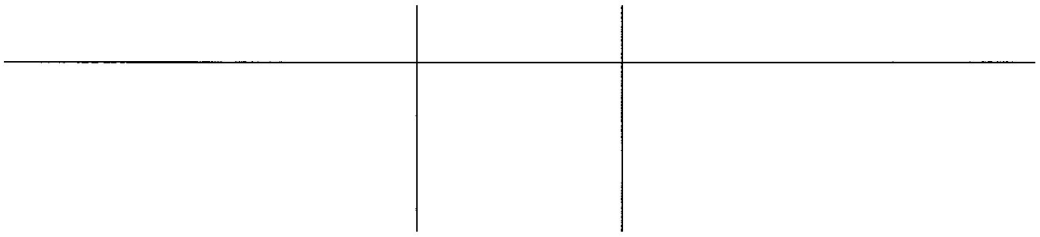
[2223 S.1 Final Exam BQ Q13]

31. The following data show the temperatures (in °C) of two cities in the past two weeks.

City *A*					City *B*				
22	30	24	17	25	29	19	18	26	23
26	25	16	23	18	21	19	23	27	19

Construct a back-to-back stem-and-leaf diagram below to present the data. (3 marks)

Temperatures of two cities in the past two weeks



[2223 S.1 Final Exam MC Q10]

32. The following stem-and-leaf diagram shows the heights of 20 plants.

Heights of 20 plants

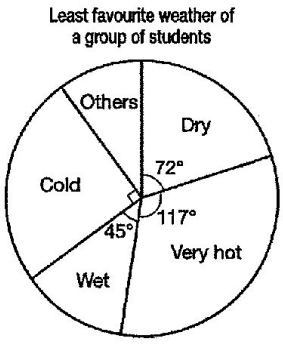
Stem (10 cm)	Leaf (1 cm)
0	*a* 8 9
1	0 2 3 *b* 3 6 7 9
2	2 5 5 6 9 *c*
3	0 2 5

It is given that the difference between the heights of the tallest and the shortest plants is 28 cm. Then

A. $a = 3, b = 4, c = 9$.
B. $a = 3, b = 4, c = 0$.
C. $a = 7, b = 3, c = 9$.
D. $a = 7, b = 3, c = 0$.

[2223 S.1 Final Exam MC Q17]

33. The following pie chart shows the least favourite weather of a group of students.



If the difference in the numbers of students who dislike dry weather and wet weather is 30, find the total number of students who were interviewed.

A. 150
B. 240
C. 390
D. 400