AMAJUBA DISTRICT MATHS

REVISION MATERIAL GR. 11 MATHEMATICS 2019
STATISTICS

NOV 2018

QUESTION 1

A school held a sports day. One of the items on the programme was an obstacle race. Teams of 10 parents and learners participated in this race. The table below shows the time taken, in minutes, by each member of a particular team to complete the race.

4	12	13	16	17	18	20	22	22	25

1.1 How long, in minutes, did it take for the fastest member of this team to complete the race? (1)

1.2 Determine the mean time taken by this team. (2)

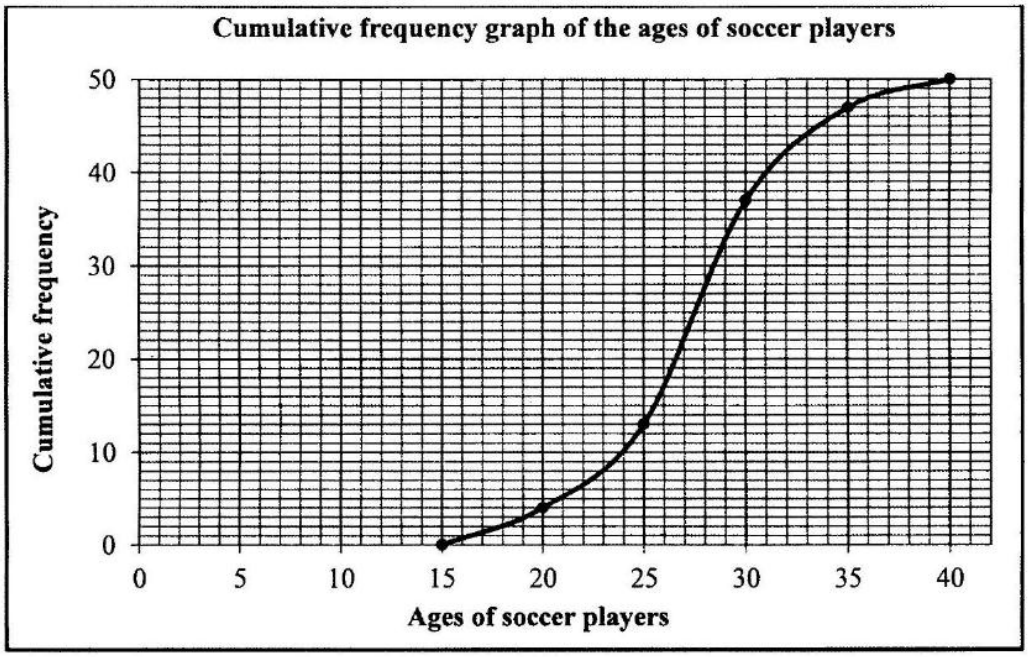
1.3 Calculate the standard deviation for the data. (1)

1.4 How many members of the team completed the obstacle race outside of two standard deviations of the mean? (3)

1.5 It took another team a total time of $x+5$ minutes to complete the race. Calculate the value of x if the overall mean of the two teams combined was 18 minutes. (3)
[10]

QUESTION 2

2.1 A survey was conducted of the ages of players at a soccer tournament. The results are shown in the cumulative frequency graph (ogive) below.



2.1.1 How many players took part in the soccer tournament? (1)

2.1.2 Determine the number of players between the ages of 24 and 31 years old. (2)

2.1.3 Complete the frequency column of the table below in the ANSWER BOOK.

CLASS INTERVAL	FREQUENCY	CUMULATIVE FREQUENCY
$15 \leq x < 20$		4
$20 \leq x < 25$		13
$25 \leq x < 30$		37
$30 \leq x < 35$		47
$35 \leq x < 40$		50

(3)

2.1.4 Use the grid provided in the ANSWER BOOK to draw a frequency polygon for the data. (4)

2.2 Two Grade 11 Mathematics classes have the same number of learners. The five-number summaries of the marks obtained by these classes for a test are shown below.

CLASS A $(30 ; 48 ; 65 ; 82 ; 90)$

CLASS B $(50 ; 58 ; 65 ; 75 ; 90)$

The parents of learners in CLASS A and CLASS B observe that both classes have the same median and the same maximum mark and therefore claim that there is no difference in the performance between these classes.

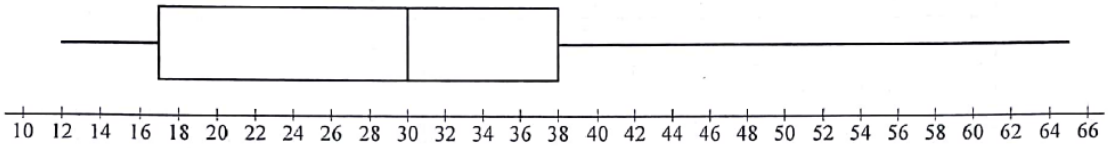
Do you agree with this claim? Use at least TWO different arguments to justify your answer. (3)

[13]

NOV 2017

QUESTION 1

1.1 Mr Brown conducted a survey on the amount of airtime (in rands) EACH student had on his or her cellphone. He summarised the data in the box and whisker diagram below.



1.1.1 Write down the five-number summary of the data. (2)

1.1.2 Determine the interquartile range. (1)

1.1.3 Comment on the skewness of the data. (1)

1.2 A group of 13 students indicated how long it took (in hours) before their cellphone batteries required recharging. The information is given in the table below.

5	8	10	17	20	29	32	48	50	50	63	y	107

1.2.1 Calculate the value of y if the mean for this data set is 41. (2)

1.2.2 If $y = 94$, calculate the standard deviation of the data. (1)

1.2.3 The mean time before another group of 6 students needed to recharge the batteries of their cellphones was 18 hours. Combine these groups and calculate the overall mean time needed for these two groups to recharge the batteries of their cellphones. (3)

[10]

QUESTION 2

A student conducted a survey among his friends and relatives to determine the relationship between the age of a person and the number of marketing phone calls he or she received within one month. The information is given in the table below.

AGE OF PERSON IN SURVEY	FREQUENCY	CUMULATIVE FREQUENCY
$20 < x \leq 30$	7	7
$30 < x \leq 40$		27
$40 < x \leq 50$	25	
$50 < x \leq 60$		64
$60 < x \leq 70$		72
$70 < x \leq 80$	4	
$80 < x \leq 90$		80

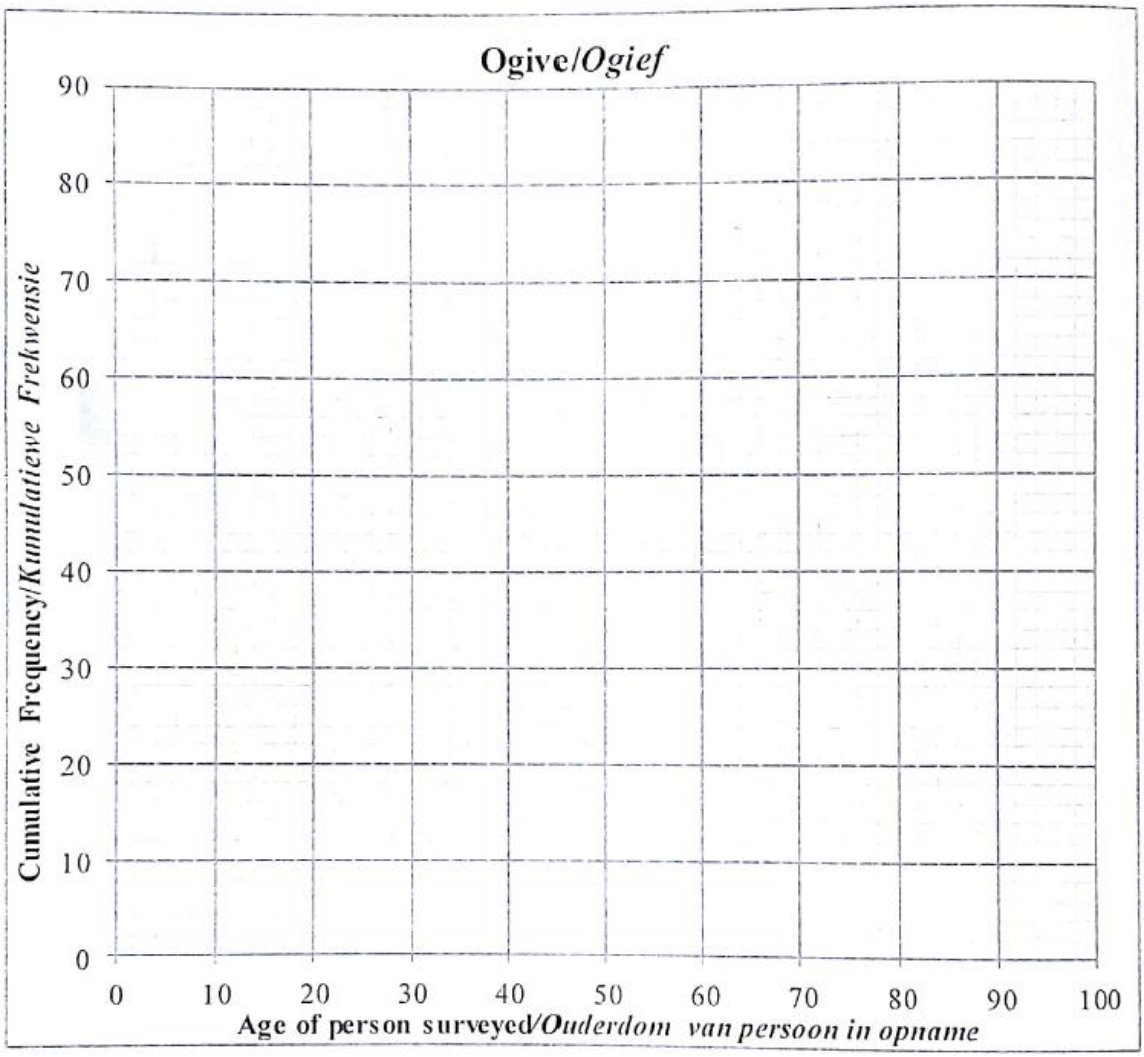
2.1 Complete the frequency and cumulative frequency columns in the table given in the ANSWER BOOK. (4)

2.2 How many people participated in this survey? (1)

2.3 Write down the modal class. (1)

2.4 Draw an ogive (cumulative frequency graph) to represent the data on the grid given in the ANSWER BOOK. (3)

2.5 Determine the percentage of marketing calls received by people older than 54 years. (3)
[12]


Ogive/*Ogief*
Cumulative Frequency/*Kumulatiewe Frekwensie*
90
80
70
60
50
40
30
20
10
0
0
10
20
30
40
50
60
70
80
90
100
Age of person surveyed/*Ouderdom van persoon in opname*

NOV 2016

QUESTION 1

The table below shows the number of cans of food collected by 9 classes during a charity drive.

5	8	15	20	25	27	31	36	75

1.1 Calculate the range of the data. (1)

1.2 Calculate the standard deviation of the data. (2)

1.3 Determine the median of the data. (1)

1.4 Determine the interquartile range of the data. (3)

1.5 Use the number line provided in the ANSWER BOOK to draw a box and whisker diagram for the data above. (3)

1.6 Describe the skewness of the data. (1)

1.7 Identify outliers, if any exist, for the above data. (1)

[12]

QUESTION 2

The table below shows the time (in minutes) that 200 learners spent on their cellphones during a school day.

TIME SPENT (IN MINUTES)	FREQUENCY
$95 < x \leq 105$	15
$105 < x \leq 115$	27
$115 < x \leq 125$	43
$125 < x \leq 135$	52
$135 < x \leq 145$	28
$145 < x \leq 155$	21
$155 < x \leq 165$	10
$165 < x \leq 175$	4

2.1 Complete the cumulative frequency column in the table provided in the ANSWER BOOK. (2)

2.2 Draw a cumulative frequency graph (ogive) of the data on the grid provided. (3)

2.3 Use the cumulative frequency graph to determine the value of the lower quartile. (2)

2.4 Determine, from the cumulative frequency graph, the number of learners who used their cellphones for more than 140 minutes. (2)

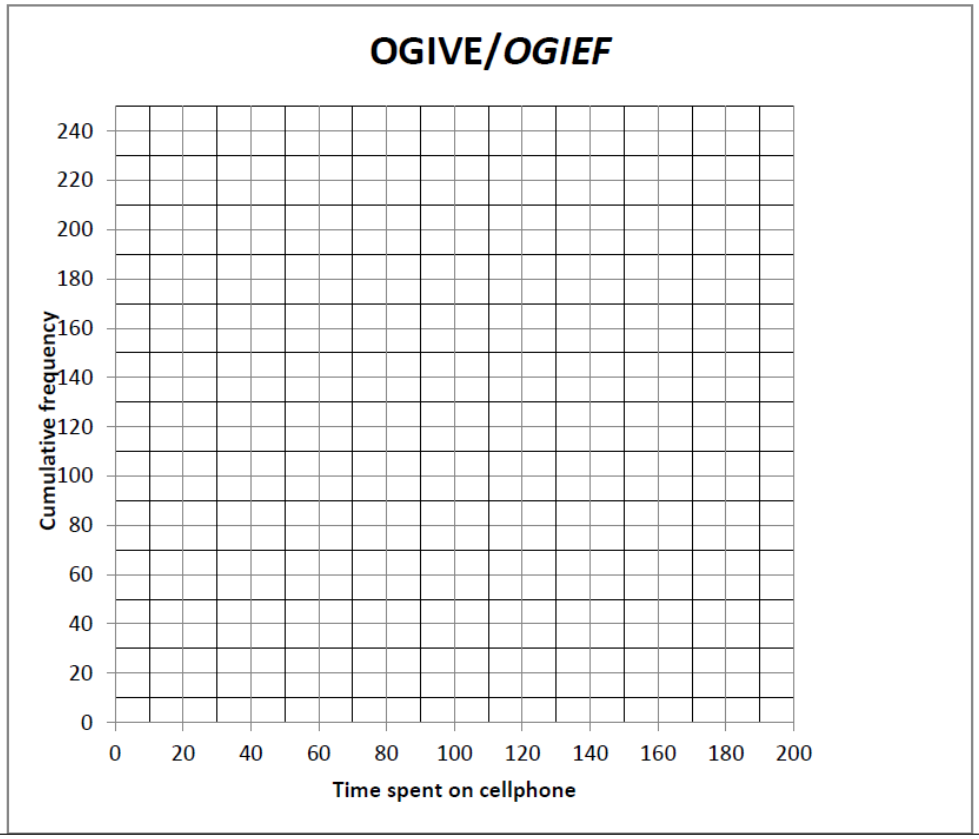
[9]

2.1

TIME SPENT/ *TYD SPANDEER* (IN MINUTES/ *MINUTE*)	**FREQUENCY/ *FREKWENSIE***	**CUMULATIVE FREQUENCY/ *KUMULATIEWE FREKWENSIE***
$95 < x \leq 105$	15	
$105 < x \leq 115$	27	
$115 < x \leq 125$	43	
$125 < x \leq 135$	52	
$135 < x \leq 145$	28	
$145 < x \leq 155$	21	
$155 < x \leq 165$	10	
$165 < x \leq 175$	4	

(2)

2.2



(3)

NOV 2015

QUESTION 1

The table below shows the weight (to the nearest kilogram) of each of the 27 participants in a weight-loss programme.

56	68	69	71	71	72	82	84	85
88	89	90	92	93	94	96	97	99
102	103	127	128	134	135	137	144	156

1.1 Calculate the range of the data. (2)

1.2 Write down the mode of the data. (1)

1.3 Determine the median of the data. (1)

1.4 Determine the interquartile range of the data. (3)

1.5 Use the number line provided in the ANSWER BOOK to draw a box and whisker diagram for the data above. (2)

1.6 Determine the standard deviation of the data. (2)

1.7 The person weighing 127 kg states that she weighs more than one standard deviation above the mean. Do you agree with this person? Motivate your answer with calculations. (3)

[14]

QUESTION 2

The table below shows the weight (in grams) that each of the 27 participants in the weight-loss programme lost in total over the first 4 weeks.

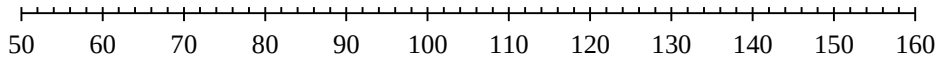
WEIGHT LOSS OVER 4 WEEKS (IN GRAMS)	FREQUENCY
$1\,000 < x \leq 1\,500$	2
$1\,500 < x \leq 2\,000$	3
$2\,000 < x \leq 2\,500$	3
$2\,500 < x \leq 3\,000$	4
$3\,000 < x \leq 3\,500$	5
$3\,500 < x \leq 4\,000$	7
$4\,000 < x \leq 4\,500$	2
$4\,500 < x \leq 5\,000$	1

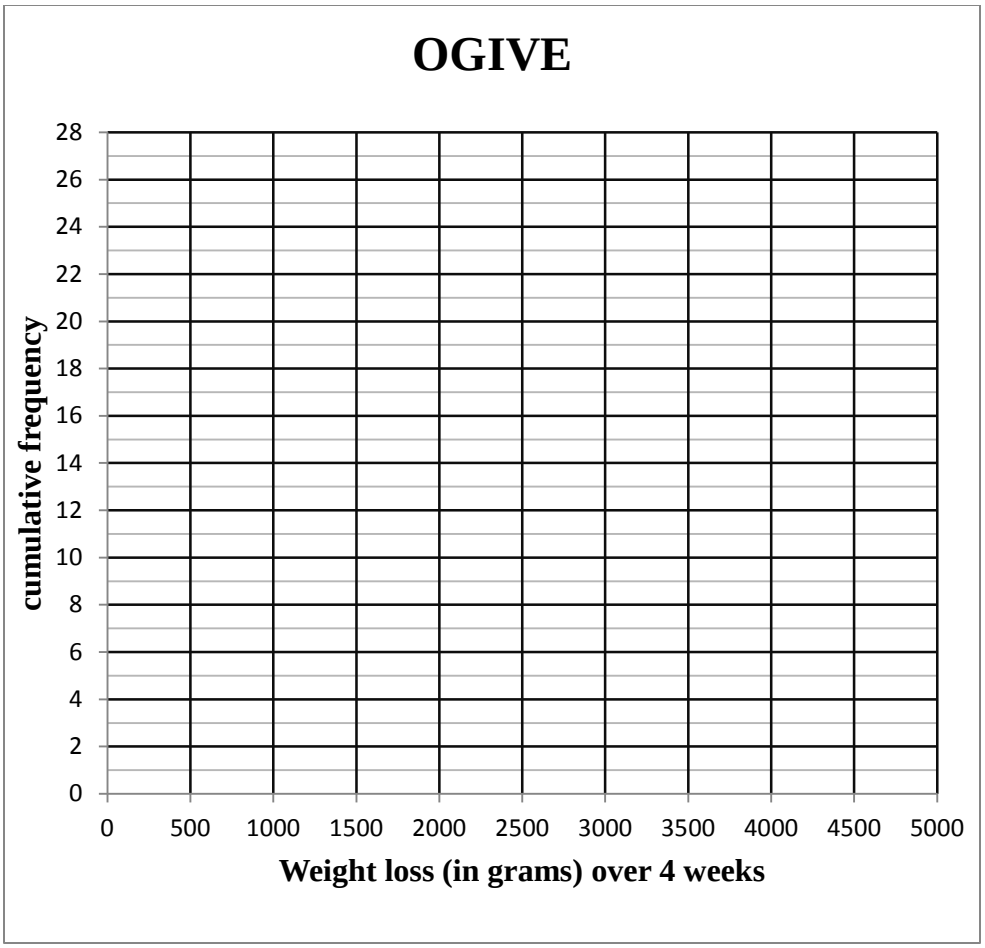
2.1 Estimate the average weight loss, in grams, of the participants over the first 4 weeks. (2)

2.2 Draw an ogive (cumulative frequency graph) of the data on the grid provided. (4)

2.3 The weight-loss programme guarantees a loss of 800 g per week if a person follows the programme without cheating. Hence, determine how many of the participants had an average weight loss of 800 g or more per week over the first 4 weeks. (2)

[8]

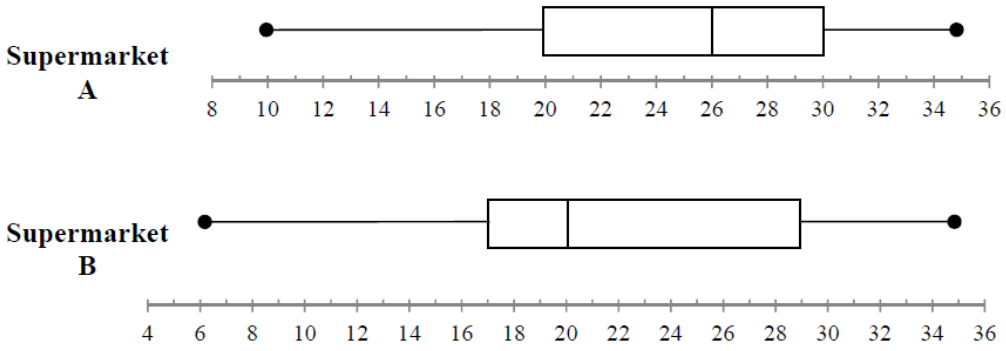



OGIVE
cumulative frequency
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
Weight loss (in grams) over 4 weeks

NOV 2014

QUESTION 1

1.1 The number of delivery trucks making daily deliveries to neighbouring supermarkets, Supermarket A and Supermarket B, in a two-week period are represented in the box-and-whisker diagrams below.



1.1.1 Calculate the interquartile range of the data for Supermarket A. (2)

1.1.2 Describe the skewness in the data of Supermarket A. (1)

1.1.3 Calculate the range of the data for Supermarket B. (2)

1.1.4 During the two-week period, which supermarket receives 25 or more deliveries per day on more days? Explain your answer. (2)

1.2 The number of delivery trucks that made deliveries to Supermarket A each day during the two-week period was recorded. The data is shown below.

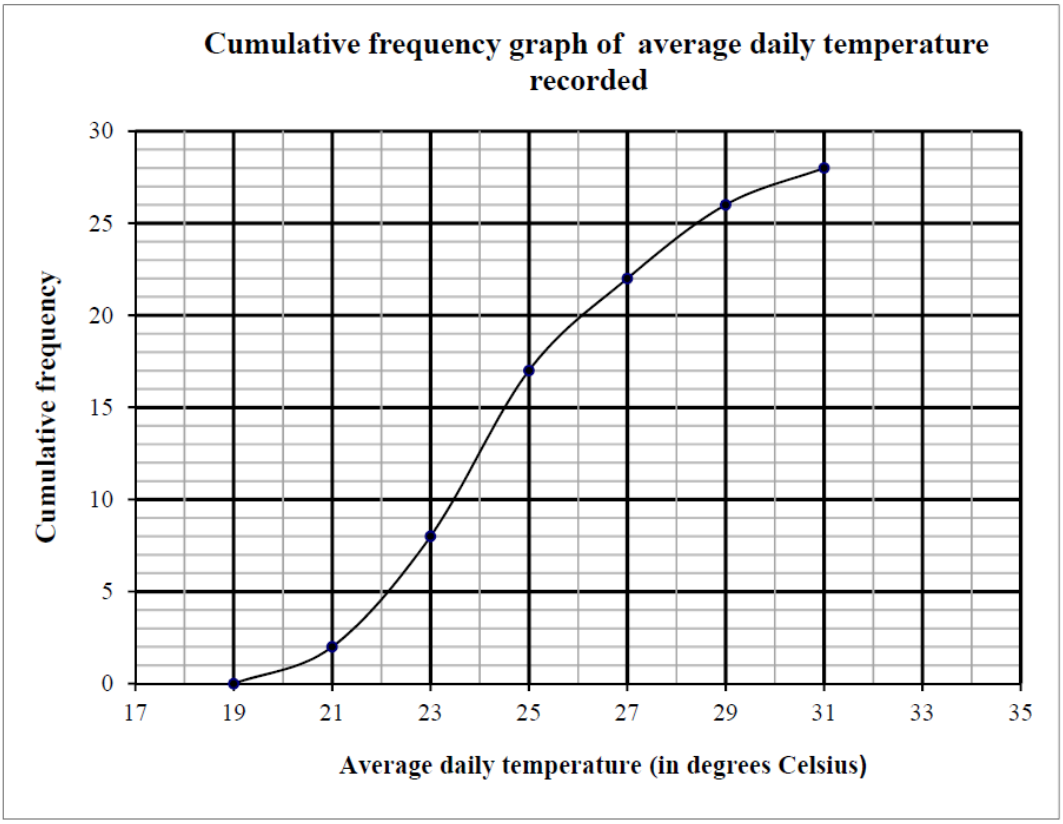
10	15	20	x	30	35	15	31	32	21	x	27	28	29

If the mean of the number of delivery trucks that made deliveries to supermarket A is 24,5 during these two weeks, calculate the value of x. (3)

[10]

QUESTION 2

The 2012 Summer Olympic Games was held in London. The average daily temperature, in degrees Celsius, was recorded for the duration of the Games. A cumulative frequency graph (ogive) of this data is shown below.



2.1 Over how many days was the 2012 Summer Olympic Games held? (1)

2.2 Estimate the percentage of days that the average daily temperature was less than 24 °C. (2)

2.3 Complete the frequency table for the data on DIAGRAM SHEET 1. (3)

2.4 Hence, use the grid provided on DIAGRAM SHEET 1 to draw a frequency polygon of the data. (4)
[10]

EXEMPLAR 2013

QUESTION 1

The data below shows the number of people visiting a local clinic per day to be vaccinated against measles.

5	12	19	29
35	23	15	33
37	21	26	18
23	18	13	21
18	22	20	

1.1 Determine the mean of the given data. (2)

1.2 Calculate the standard deviation of the data. (2)

1.3 Determine the number of people vaccinated against measles that lies within ONE standard deviation of the mean. (2)

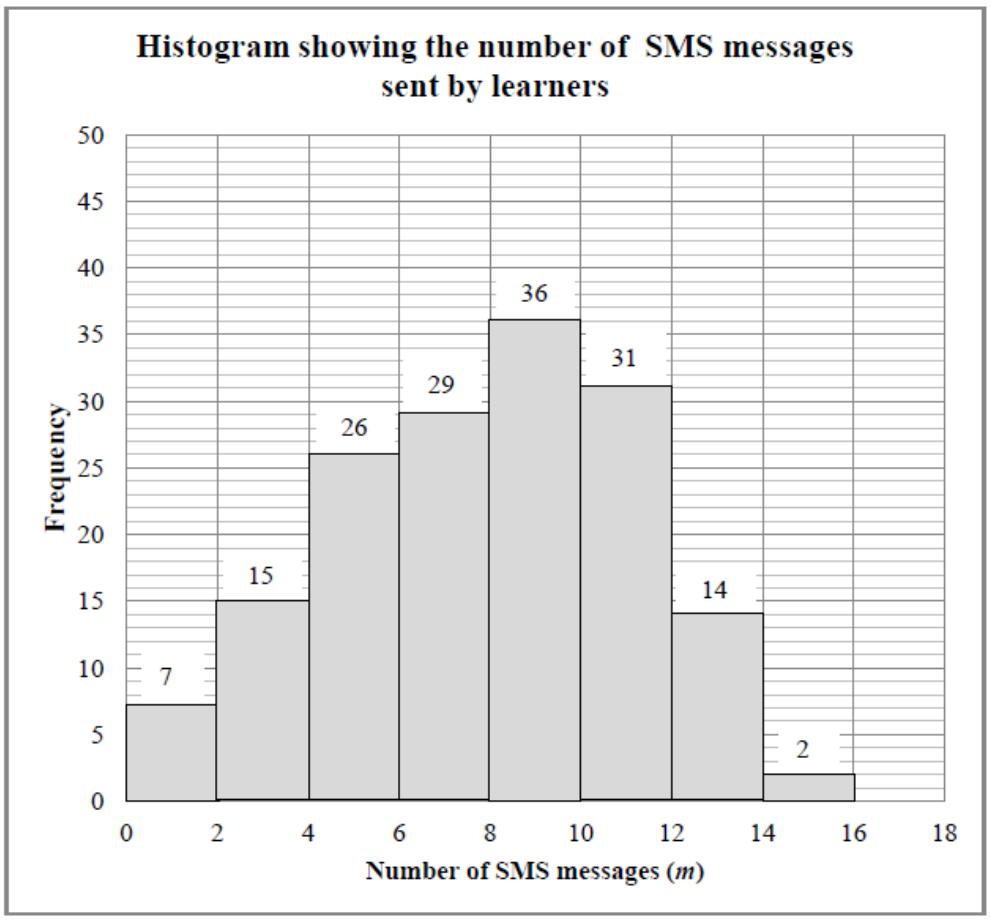
1.4 Determine the interquartile range for the data. (3)

1.5 Draw a box and whisker diagram to represent the data. (3)

1.6 Identify any outliers in the data set. Substantiate your answer. (2)
[14]

QUESTION 2

A group of Grade 11 learners were interviewed about using a certain application to send SMS messages. The number of SMS messages, m, sent by each learner was summarised in the histogram below.



2.1 Complete the cumulative frequency table provided in DIAGRAM SHEET 1. (2)

2.2 Use the grid provided in DIAGRAM SHEET 2 to draw an ogive (cumulative frequency curve) to represent the data. (3)

2.3 Use the ogive to identify the median for the data. (1)

2.4 Estimate the percentage of the learners who sent more than 11 messages using this application. (2)

2.5 In which direction is the data skewed? (1)

[9]