

WISKUNDE TOETS [Data-hantering]  
 GRAAD 8  
 Eksaminator:

Tyd: 60 min  
 Punte: 50  
 Moderator:

VRAAG 1

Beskou die volgende stel van 12 waardes, in stygende volgorde gerangskik.  
 Consider the following set of 12 values, arranged in ascending order

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

Gebruik hierdie stel waardes om elk van die volgende vrae te beantwoord:  
 Determine each of the following, with reference to this set of values.

- 1.1 Die omvang  
The range (2)
- 1.2 Die modus  
The mode (1)
- 1.3 Die median  
The median (2)
- 1.4 Die gemiddelde  
The mean (2)  
(7)

VRAAG 2

Die volgende stingel-en-blaardigram toon die leerders in 'n Graad 8-klas se Junie Wiskunde-uitslae (as persentasies). Die som van die waardes is 1 736  
 The following stem-and-leaf plot shows the June Mathematics results (as percentages) for learners in a Grade 8 class. The sum of the values is 1 736.

STINGELS/STEMS	GEORDENDE BLARE/ORDERED LEAVES	TELLING/COUNT OF LEAVES
0		
1		
2	4	1
3	1 5 6 9	4
4	1 2 3 3 4 7 7 8 9	9
5	4 4 5 6 6 6 6	7
6	1 3 5 5 6 7	6
7	0 2 3	3
8	5	1
9	3	1

Sleutel: 2/4 = 24% Key: 2/4 = 24%

Beantwoord, met verwysing na hierdie datastel, die volgende vrae  
 Answer the question which follow, with reference to this set of data.

- 2.1 Bereken die omvang van die uitslae  
Calculate the range of the results (1)
- 2.2 Bepaal die mediaan van hierdie uitslae  
Determine the median of this set of results (2)
- 2.3 Bepaal die modus van hierdie uitslae  
Determine the mode of this set of results (1)
- 2.4 As die som van die uitslae wat hier getoon word, 1 736 is, bereken die gemiddelde van hierdie datastel korrek tot twee desimale plekke  
If the sum of the results shown here is 1 736, calculate the mean of this set of data, correct to two decimal places. (2)
- 2.5 Gedurende die eksamentydperk, was een leerder, as gevolg van siekte, afwesig. Die onderwyser het vir hierdie leerder 'n benaderde eksamenuitslag, gebaseer op die leerder se toetsuitslae, bereken. As die benaderde punt by bostaande gegewe datastel gevoeg word, verhoog die klas se gemiddelde punt na presies 55%. Bepaal die punt (as 'n persentasie), wat die onderwyser vir die leerder bereken het?  
During the examination period, one learner was absent from school, as a result of illness. For this learner, the teacher calculated an estimated examination result, based on the learner's test results. If the estimated mark is added to the set of data given above, then the mean mark of the class increases to exactly 55%. Determine the mark (as a percentage), which the teacher calculated for this learner. (3)  
(9)

VRAAG 3

Tien Graad 8-leerders het onlangse toetsuitslae bespreek en hul prestasies in 'n spesifieke toets, wat uit 20 getel het, vergelyk.  
 Ten learners in Grade 8 were discussing their recent test results and they compared their performances in a particular test, which was marked out of 20.

- 3.1 Gebruik die volgende inligting (punte A tot F hieronder) om die gegewe table te voltooi, deur nege uitslae wat genome is, in te vul en hul van hoogste (posisie 1) tot laagste (posisie 10) te plaas. Jy sal nie die tweede hoogste uitslag (in posisie 2), voorgestel deur x kan invul nie. Use the following information (points A to F below) to complete the given table, filling in nine results that were mentioned, ranking them from the highest (position 1) to lowest (position 10). You will not fill in the second highest result (in position 2), represented by x.

- A Die hoogste toetspunt was 19 (uit 20)  
A The highest test mark was 19 (out of 20)
- B Die omvang van die punte was 16  
B The range of the results was 16
- C Die laagste uitslag was 3 punte minder as die tweede laaste  
C The lowest result was 3 marks lower than the second lowest
- D Die mediaanpunt was 13 (uit 20), maar geen seun het presies 13 behaal nie  
D The median mark was 13 (out of 20), but no boy achieved exactly 13.
- E Die data was bimodaal. Twee modusse, 9 en 15, kom elk twee keer voor.  
E The data was bimodal. Two modes, 9 and 15, each appeared twice.
- F Een seun het 14 (uit 20) behaal  
F One boy achieved 14 (out of 20)

	POSISIE / POSITION	TOETSUITSLAG (uit 20) / TEST RESULT (out of 20)
HOOGSTE/HIGHEST	1	
	2	x
	3	
	4	
	5	
	6	
	7	
	8	
	9	
LAAGSTE/LOWEST	10	

(9)

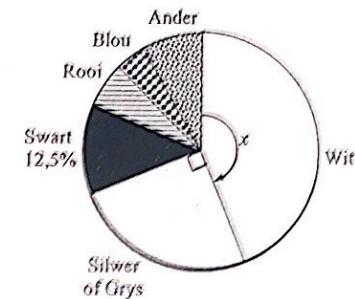
- 3.2 As die gemiddelde toetsuitslag vir die groep van tien leerders 12 (uit 20) was, bereken die waarde van  $x$  (die tweede hoogste uitslag). Toon alle berekeninge.  
If the mean test result for the group of ten learners was 12 (out of 20), calculate the value of  $x$  (the second highest result). Show all your working.

(3)  
[12]

#### VRAAG 4

Een van jou klasmaats het die kleure van 240 motors wat een spesifieke middag by die skool verbygery het aangeteken en die data in die volgende sirkelgrafiek voorgestel.  
One of your classmates recorded the colours of 240 cars which drove past the school on a particular afternoon and represented this data in the following pie chart.

Sirkelgrafiek wat die kleure van 240 motors toon  
Pie chart showing the colours of 240 cars



Beantwoord, met verwysing na die sirkelgrafiek, die volgende vrae  
Answer the following questions with reference to the pie chart.

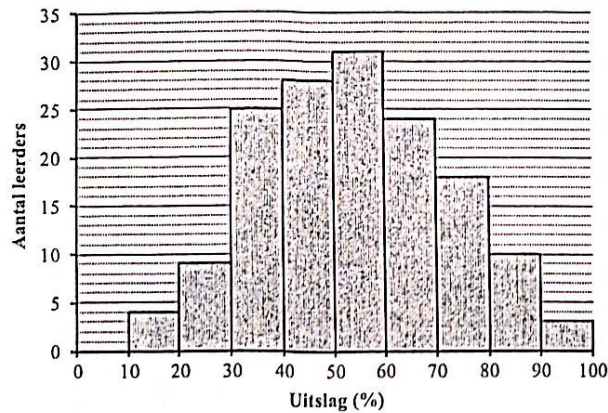
- 4.1 Hy het bereken dat 12,5% van die motors wat hy gesien het, swart was. Hoeveel van die motors was swart?  
He calculated that 12,5% of the cars he observed were black. How many of the cars were black?  
(2)
- 4.2 Van die 240 motors wat die leerder gesien het, was 105 wit. Bepaal die grootte van die hoek gemerk  $x$ , korrek tot een desimale plek.  
Of the 240 cars the learner observed, 105 were white. Determine the size of the angle marked  $x$ , correct to one decimal place.  
(2)
- 4.3 Die hoek in die "Silwer of Grys" sektor is 'n regtehoek. Bepaal die aantal silwer of grys motors.  
The angle in the "Silver or Grey" sector is a right angle. Determine the number of cars that were silver or grey in colour.  
(2)  
[6]



**VRAAG 5**

Die volgende histogram toon die verspreiding van 'n groep Graad 6's se November Wiskunde-eksamenuitslae  
*The following histogram shows the distribution of the November Mathematics examination results for a group of grade 8's.*

**Histogram wat verspreiding van grad 8 November Wiskunde-eksamenuitslae toon**  
**Histogram showing distribution of grade 8 November Mathematics examination results**



Let daarop dat die histogram aandui dat vier leerders 'n resultaat wat in die interval  $10\% \leq x < 20\%$  lê, behaal het, nege leerders het 'n resultaat wat in die interval  $20\% \leq x < 30\%$  lê, behaal, ens. Verwys na die diagram terwyl jy die volgende vrae beantwoord.  
*Note that the histogram indicates that four learners achieved a result which lies in the interval  $10\% \leq x < 20\%$ , nine learners achieved a result which lies in the interval  $20\% \leq x < 30\%$ , etc. Refer to the histogram as you answer the questions which follow.*

- 5.1 Hoeveel leerders het 'n resultaat wat in die interval  $50\% \leq x < 60\%$  lê, behaal?  
*Determine the number of learners who achieved a result which lies in the interval  $50\% \leq x < 60\%$*  (1)
- 5.2 Hoeveel leerders word in die histogram verteenwoordig?  
*Determine the number of learners represented in the histogram.* (1)
- 5.3 Hoeveel leerders het ten minste 50% vir die eksamen behaal?  
*Determine the number of learners who achieved at least 50% for the examination.* (1)

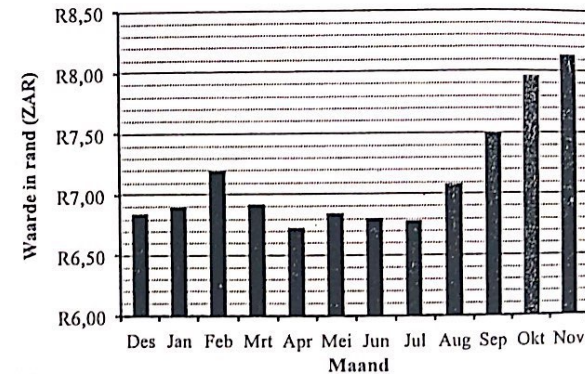
- 5.4 Bereken die persentasie leerders wat minder as 50% vir die eksamen behaal het.  
 Gee jou antwoord korrek tot een desimale plek.  
*Calculate the percentage of learners who achieved less than 50% for the examination.*  
*Give your answer correct to one decimal place.* (2)  
 [5]

**VRAAG 6**

Beskou die volgende kolomgrafiek, wat gebaseer is op inligting wat van die webwerf <http://www.oanda.com/currency/historical-rates/> afgelaai is. Die kolomgrafiek toon die maandelikse gemiddelde waarde van 1 US dollar in Suid-Afrikaanse rand vir die tydperk vanaf Desember 2010 tot November 2011.

*Consider the following bar graph, which is based on information downloaded from the website <http://www.oanda.com/currency/historical-rates/>. The bar graph shows the monthly mean value of 1 US dollar in South African rands for the period from December 2010 to November 2011.*

**Kolomgrafiek wat die maandelikse gemiddelde waarde van die US dollar in Suid-Afrikaanse rand (Des 2010 tot Nov 2011) toon**  
**Bar graph showing the monthly mean value of the US dollar in South African rand (Dec 2010 to Nov 2011)**



Beantwoord, met verwysing na die kolomgrafiek, die volgende vrae.  
*Answer the following questions, with reference to this bar graph.*

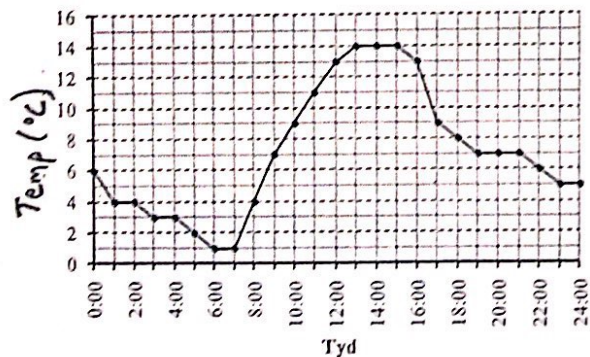
- 6.1 Bepaal 'n benadering van die maksimum en minimum maandelikse gemiddelde waardes op hierdie grafiek getoon, korrek tot die naaste set  
*Determine an estimate of the maximum and minimum monthly mean values depicted on the graph, correct to the nearest cent* (1)

- 6.2 Bereken die omvang van die maandelikse gemiddelde waardes op hierdie grafiek getoon  
Calculate the range in the monthly mean values depicted on this graph (1)
- 6.3 Druk die omvang van die waardes as 'n persentasie van die laagste waarde wat op hierdie grafiek voorgestel word, uit.  
Express the range in the values as a percentage of the lowest value represented on this graph. (1)
- 6.4 Beskryf een eienskap van die grafiek wat tot gevolg het dat die omvang van die waardes oordryf word  
Describe one characteristic of the graph which results in the range in the values being exaggerated. (1)
- 6.5 Gebruik hierdie grafiek om die maandelikse gemiddelde vir Desember 2011 te voorspel. Motiveer jou voorspelling met verwysing na die grafiek.  
Use this graph to predict the monthly mean for December 2011. Justify your prediction, with reference to the graph. (1)  
(5)

VRAAG 7

Die volgende gebroke lyngrafiek toon die temperatuur aangeteken, met uurlikse intervalle, by die OR Tambo Internasionale Lughawe (JHB) op 1 Julie 2011. Hierdie grafiek is gebaseer op data vanaf die webtuiste <http://freemeteo.com/>.  
The following broken line graph shows the temperature recorded at hourly intervals at the Johannesburg International Airport on 1 July 2011. This graph is based on data taken from the website <http://freemeteo.com/>.

Gebroke lyngrafiek wat temperature (in °C) by OR Tambo Internasionale Lughawe (JHB) op 1 Julie toon  
Broken line graph showing temperatures (in °C) at Johannesburg International Airport on 1 July 2011



Gebruik die grafiek om die volgende vrae te beantwoord:  
Answer the following questions with reference to the graph above.

- 7.1 Bereken die omvang van temperatuur op hierdie dag  
Calculate the range in temperature on this day. (1)
- 7.2 Wat was die temperatuur teen 9:00?  
What was the temperature at 9:00 (1)
- 7.3 Gebruik die grafiek om 'n benadering van die temperatuur teen 10:30 te bepaal.  
Use the graph to determine an estimate of the temperature at 10:30 (1)
- 7.4 Vir hoeveel ure was die temperatuur 13°C of warmer?  
For how many hours was the temperature 13°C or hotter? (1)
- 7.5 Gee 'n benadering van die tye waarby die temperatuur gelyk aan 12 °C.  
Give an estimate of the times at which the temperature was equal to 12 °C. (1)
- 7.6 Bepaal die een-uurperiode waartydens die temperatuur die meeste verander het.  
Determine the one-hour period over which the temperature changed most (1)  
(6)

TOTAAL: 50



# MEMORANDUM

WISKUNDE TOETS

TYD: 60min

GRAAD 8

PUNTE: 50

ERSAMINATOR:

MODERATOR:

1.1)  $8 - 1 = 7$  ✓ (2)

1.2)  $8$  ✓ (1)

1.3)  $\frac{5+6}{2} = 5\frac{1}{2}$  ✓ (2)

1.4)  $\frac{50}{10} = 5$  ✓ (2)

[7]

2.1)  $93 - 24 = 69$  ✓ (1)

2.2)  $\frac{54+55}{2} = 54\frac{1}{2}$  ✓ (2)

2.3)  $56$  ✓ (1)

2.4)  $\frac{1736}{32} = 54,25\%$  (2)

2.5)  $55 \times 33 = 1815$  ✓

$1815 - 1736 = 79\%$  (3)

[9]

3.1) 1: 19 ✓

2: x

3: 15 ✓

4: 15 ✓

5: 14 ✓

6: 12 ✓

7: 19 ✓

8: 9 ✓

9: 6 ✓

10: 3 ✓ (9)

3.2)  $10 \times 12 = 120$  ✓

$x = 120 - 102$  ✓

$= 18$  ✓ (3)

[12]

4.1)  $\frac{12,5}{100} \times \frac{240}{1} = 30$  ✓ (2)

4.2)  $\frac{105}{240} \times \frac{360}{1} = 157,5^\circ$  (2)

4.3)  $\frac{90}{360} \times \frac{240}{1} = 60$  ✓ (2)

[6]

5.1) 31 ✓ (1)

5.2)  $4 + 9 + 25 + 28 + 31 + 24 + 18 + 10 + 3 = 152$  ✓ (1)

5.3)  $31 + 24 + 18 + 10 + 3 = 86$  ✓ (1)

5.4)  $\frac{66}{152} \times \frac{100}{1} = 43,4\%$  ✓ (2)

[5]

6.1)  $\pm R 8,12 - 6,72$  ✓ (1)

6.2)  $\pm R 1,40$  ✓ (1)

6.3)  $\pm \frac{1,40}{6,72} \times \frac{100}{1} = 21,6\%$  ✓ (1)

6.4) Waaiers begin nie by a, by R6 ✓ (1)

6.5)  $\pm R 8,00$  R HET VERWAK ✓ (1)

[5]

7.1)  $14^\circ\text{C} - 1^\circ\text{C} = 13^\circ\text{C}$  ✓ (1)

7.2)  $7^\circ\text{C}$  ✓ (1)

7.3)  $10^\circ\text{C}$  ✓ (1)

7.4) 4 ure ✓ (1)

7.5) 11h30 of 16h15 ✓ (1)

7.6) 16h00 - 17h00 ✓ (1)

[6]

TOTAAL: 50