

Mathematics Challenge

GRADE 5 FINAL ROUND
31 OCTOBER 2001

NOTE:

- Answer the questions according to the instructions on the answer sheet.
- You may use a calculator.
- The questions test insight. Complex calculations will therefore not be necessary.
- We hope you enjoy it!

Wiskunde-uitdaging

GRAAD 5 FINAL RONDE
31 OKTOBER 2001

LET OP:

- Beantwoord die vrae volgens die instruksies op die antwoordblad.
- Jy mag 'n sakrekenaar gebruik.
- Die vrae toets insig. Omslagtige berekeninge is dus onnodig en tydrowend.
- Ons hoop jy geniet dit!

Unceli-mngeni Ngezibalo

GRADE 5 UMJIKELO WOKUGQIBELA
31 OKTHOBHA 2001

QAPHELA:

- Phendula imibuzo ngokwemigaqo ekwiphepha olinikiweyo.
- Ungayisebenzisa i-Calculator.
- Imibuzo ivavanya ukuqonda kwakho. Izibalo ezide, ezixhakaxhaka aziyomfuneko.
- Siyathemba uyakulonwabela!

1. Here are the times of the six athletes in the 100 metres final for boys. Who came third?

1. Hieronder is die tye van die ses atlete in die seuns 100 meter-finaal. Wie het derde gekom?

Ben Bailey:	11,9 s	Ivan Arends:	11,59 s
Garry Smith:	11,63 s	William Park:	11,23 s
Peter Davids:	11,4 s	John Mbeki:	11,32 s

1. Nanga amaxesha embaleki ezintandathu kugqatso lokugqibela lwe 100 lemitha zamakhwenkwe. Ngubani owaphuma kwindawo yesi thathu?

- (A) Ben Bailey (B) Ivan Arends (C) Peter Davids (D) John Mbeki (E) Garry Smith

2. What is the next number in this pattern?

6,8; 3,4; 1,7; ...

(A) 0,85

(B) 8,5

2. Wat is die volgende getal in hierdie getalpatroon?

6,8; 3,4; 1,7; ...

(C) 1,35

(D) 0,9

2. Leliphi inani elilandela lamanani kolu luhlu lwamani?

6,8; 3,4; 1,7; ...

(E) 0,535



In cooperation with the
**Western Cape
Education Department**

Nasou Via Afrika



CASIO

RUMEUS

Research Unit for Mathematics Education
of the University of Stellenbosch

3. If you begin with a certain one-digit number, multiply it by 3, then add 8, then divide by 2 and then subtract 6, you will get the original number as answer. What is the number?	3. As jy begin met 'n sekere eensyfer-getal, dit vermening-vuldig met 3, dan 8 bytel, dan deel deur 2 en dan 6 aftrek, sal jy die oorspronklike getal as antwoord kry. Wat is die getal?	3. Ukuba uqalela ngenani elinedijiti enye, liphindaphinde nge 3, uze udibanise isi 8, wandule ukohlula ngesi 2 emva koko uthabathe isithandathu uyakuthi ufumane isiphumo esifana kwanelanani obuqale ngalo. Ingaba lingubani eli nani?		
(A) 2	(B) 8	(C) 6	(D) 5	(E) 4

4. Which one of the following numbers will appear in this pattern: 6; 12; 18; 24; ... ?	4. Watter een van die volgende getalle sal voorkom in hierdie ry: 6; 12; 18; 24; ... ?	4. Leliphi kula manani alandelayo elizakuvela kolu luhlu: 6; 12; 18; 24; ... ?		
(A) 2 733	(B) 3 526	(C) 4 182	(D) 4 526	(E) 5 344

5. $\frac{1}{2}$ of the flowers at a flower show are South African. $\frac{2}{3}$ of the South African flowers are roses. If there are 72 flowers at the flower show, how many are South African roses?	5. $\frac{1}{2}$ van die blomme by 'n blommeskou is Suid-Afrikaans. $\frac{2}{3}$ van die Suid-Afrikaanse blomme is rose. As daar 72 blomme by die blommeskou is, hoeveel is Suid-Afrikaanse rose?	5. Isi $\frac{1}{2}$ sentyatyambo kwiintyatyambo ezikumboniso zezaseMzantsi Afrika. Isi $\frac{2}{3}$ sentyatyambo zaseMzantsi Afrika zibizwa ngokuba zii roses.. Ukuba iintyatyambo ezikulomboniso zingama 72, zingaphi ii roses zase Mzantsi Afrika?		
(A) 36	(B) 24	(C) 48	(D) 12	(E) 5

6. John has 6 friends and Mary has 5 friends. They decided to have a joint party and invited all their friends. All the friends have accepted their invitation. How many friends will be coming?	6. John het 6 vriende en Mary het 5 vriende. Hulle besluit om saam 'n partyjie te hou en nooi al hul vriende. Al die vriende het die uitnodiging aanvaar. Hoeveel vriende sal by die partytjie wees?	6. U John unetshomi ezi 6 kwaye uMary abe netshomi ezi 5. Bagqiba ekubeni babe netheko labo bobabini baza bamema zonke iitshomi zabo. Zonke iitshomi zabo zavuma ukuba zizakuza kweli theko. Zingapi iitshomi ezathi zeza kweli theko?		
(A) 6	(B) 5	(C) 11	(D) 13	(E) Not enough information Te min inligting Ingxelo enikiweyo ayonelanga

7. Calculate: $2 - 1 + 3 - 2 + 4 - 3 + 5 - 4 + 6 - 5 + \dots + 101 - 100$	7. Bereken: $2 - 1 + 3 - 2 + 4 - 3 + 5 - 4 + 6 - 5 + \dots + 101 - 100$	7. Bala: $2 - 1 + 3 - 2 + 4 - 3 + 5 - 4 + 6 - 5 + \dots + 101 - 100$		
(A) 99	(B) 100	(C) 101	(D) 102	(E) None of these Nie een hiervan nie Ayikho kwezi

12. Jason has a combination lock with four digits. He has forgotten the combination to open the lock, but remembers that it has the digits 2, 3, 5 and 9 and that it is an odd number. What is the maximum number of possible combinations that he will have to try to open the lock?

(A) 16

(B) 18

12. Jason het 'n kombinasieslot met 4 syfers. Hy het die kombinasie om die slot te open vergeet, maar onthou dat dit bestaan uit die syfers 2, 3, 5 en 9 en dat dit 'n onewe getal is. Wat is die maksimum getal verskillende kombinasies wat hy sal moet probeer om die slot oop te maak?

(C) 20

(D) 22

12. U Jason uneqhaga elivulwa ngokuthi kusetyenziswe inani eline dijithi ezine. Uye walilibala elinani lokuvula, kodwa wakhumbula ukuba elinani linezi dijithi 2, 3, 5 kunye nesi 9 kwaye lilinani elingumnqakathi. Zingaphi iindlela ezinokwenzeka angazihlanganisa ngazo ezi dijithi ukuze abe nokuqiniseka ukuba unako ukulivula iqhaga?

(E) 24

13. A stall sells vanilla, strawberry and chocolate ice creams. The pie chart illustrates the sales of ice cream last Saturday. The number of vanilla and the number of chocolate ice creams sold were the same. The stall sold 60 strawberry ice creams. How many chocolate ice creams were sold?

(A) 90

(B) 99

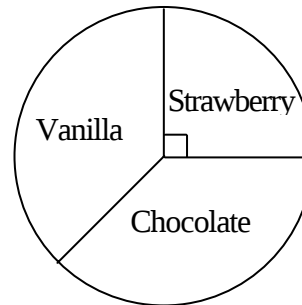
13. 'n Kiosk verkoop vanilla, aarbei en sjokolade roomys. Die sirkeldiagram illustreer die roomys verkope verlede Saterdag. Ewe veel vanilla en sjokolade roomyse is verkoop. Die kiosk het 60 aarbei roomyse verkoop. Hoeveel sjokolade roomyse is verkoop?

(C) 100

(D) 120

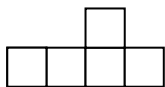
13. I venkile ithengisa ii ice creams ezenziwe nge vanilla, istrawberry kunye netshokoleti. Le tshati ibonisa ukuthengwa kwe ice cream kuMgqibelo odlulileyo. Inani lee ice cream ze vanilla kunye nenani le ice cream ze tshokoleti ezithengisiweyo liyafana. Le venkile yathi yathengisaa ama60 e ice cream ze strawberry. Zingaphi ii ice cream ze tshokoleti ezathi zathengiswa?u

(E) 135

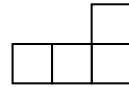


14. What will you see if you look at this block building *directly* from behind?

(A)

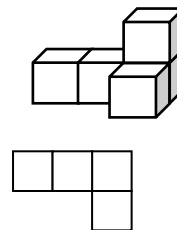


(B)

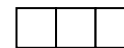


14. Wat sal jy sien as jy presies van agter na hierdie blokgebou kyk?

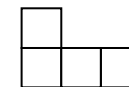
(C)



(D)



(E)



15. Mary buys a gift and puts it into a pretty box which is 420 mm long, 230 mm wide and 270 mm high. She decides to strengthen the box by putting sticky tape all along the edges of the box. How much tape does Mary need?	15. Mary koop 'n geskenk en plaas dit in 'n doos wat 420 mm lank, 230 mm wyd en 270 mm hoog is. Sy besluit om die doos te versterk deur kleeflint al om die rande van die doos te plak. Hoeveel lint het Mary nodig?	15. U Mary uthenge isipho wasifaka kwibhokisana entle enobude abungama 420 mm , ububanzi obungama 230 mm kunye nomphakamo ongama 270 mm. Wagqiba ukuba ayenze yomelele lebhokisi ngokuthi abeke intambo zokuncamathela kwibude bencam (edges) zale bhokisana. Ingakanani intambo yokuncamathisela aza kuyidinga?		
(A) 3,140 m	(B) 3,680 m	(C) 1,840 m	(D) 3,220 m	(E) 3,480 m
16. Refer to the previous question. Mary now ties up the box with yellow ribbon as shown. If 40 cm of ribbon is used to tie the knot and the bow, what length of ribbon does she use altogether?	16. Verwys na die vorige vraag. Mary bind nou die doos met 'n geel lint toe, soos getoon. Hoeveel lint gebruik sy altesaam indien 40 cm gebruik word vir die knoop en strik?			16. Jonga Kumbuzo ongentla. U Mary ngoku ubopha le bhokisana ngentambo emthubi njengoko kuboniswe. Ukuba ama 40 cm ale ntambo athe asetyenziswa ukwenza itayi kunye bowu tayi, inobude obungakanani intambo ayisebenzisileyo iyonke?
(A) 3,680 m	(B) 2,680 m	(C) 2,420 m	(D) 2,780 m	(E) 2,380 m
17. When Mark arrives at a petrol station, the gauge on the petrol tank reads $\frac{1}{8}$ of the total capacity of the tank. After purchasing 25 litres of petrol, the gauge reads $\frac{5}{8}$ full. What is the capacity, in litres, of the petrol tank?	17. Toe Mark by die garage stilhou, lees sy motor se petrolmeter dat die tenk $\frac{1}{8}$ vol is. Nadat hy 25 liter petrol ingegooi het, lees die meter dat die tenk $\frac{5}{8}$ vol is. Hoeveel liter petrol hou die tenk?	17. Xa wayefika kwigarari yepetroli u Mark isikhombisi se petroli sasibonisa isi $\frac{1}{8}$ somlinganiso wetanki elizeleyo. Emva kokuba ethenge ama 25 elitha zepetroli isikhombisi sasibonisa isi $\frac{5}{8}$ setanki elizeleyo. Ingaba itanki elizeleyo lizala zilitha ezingaphi?		
(A) 40	(B) 45	(C) 50	(D) 60	(E) 100
18. The sketch shows the first three patterns in the sequence that John is building with coins. How many coins will he need for the fiftieth pattern in the sequence?	18. Die skets toon die eerste drie patrone in die ry wat John met muntstukke uitpak. Hoeveel muntstukke het hy nodig vir die vyftigste patroon in die ry?	18. Lo mzobo ubonisa i pattern ezintathu zokuqala ezikuluhlu athi u John azakhe xa esebenzisa imali ezi nkozo. Zingaphi iinkozo azakuzifuna ukufikelela kwi pattern yamashumi amahlanu kolu luhlu?		
				
(A) 140	(B) 150	(C) 153	(D) 155	(E) None of these Nie een hiervan nie Ayikho kwezi

19. What fraction is exactly halfway between $\frac{1}{5}$ and $\frac{1}{7}$?

(A) $\frac{1}{12}$

(B) $\frac{1}{6}$

19. Watter breuk is presies halfpad tussen $\frac{1}{5}$ en $\frac{1}{7}$?

(C) 0,6

(D) $\frac{12}{35}$

19. Leliphi elona lisesizikithini phakathi kwe $\frac{1}{5}$ kunye ne $\frac{1}{7}$?

(E) $\frac{6}{35}$

20. Sara buys a tree when it is 12 cm high. Every day, she writes down its height in the table below. If the tree continues to grow the same amount every day, how high will it be after 30 days?

20. Sara koop 'n boom as dit 12 cm hoog is. Sy skryf elke dag die boom se hoogte in die tabel hieronder neer. As die boom aanhou om elke dag dieselfde hoeveelheid te groei, hoe hoog sal dit na 30 dae wees?

20. U Sarah wathenga umthi xa wawunobude obuli 12 cm. Yonke imihla wayethi abhale ubude balo mthi kule tafile yamanani ingezantsi. Ukuba lomthi wawuthi ukhule ngendlela elinganayo yonke imihla, uyakuba ukhule kangamani emva kweentsuku ezi 30?

Days/Dae/Iintsuku	0	1	2	3
Height/Hoogte/Ubude (cm)	12	13,5	15	16,5

(A) 165 cm

(B) 57 cm

(C) 36 cm

(D) 150 cm

(E) None of these
Nie een hiervan nie
Awukho kule

21. How many 4-digit numbers are there in which the sum of the digits is 4?

(A) 17

(B) 16

21. Hoeveel viersyfer-getalle is daar sodat die som van die syfers 4 is?

(C) 18

(D) 19

21. Mangaphi amanani akhoyo ane dijiti ezi 4 ezithi xa zidityanisiwe zikhuphe isiphumo esisisi 4.

(E) 20

22. The ancient Egyptians used only unit fractions like $\frac{1}{7}$ and $\frac{1}{5}$ (but not $\frac{2}{7}$, $\frac{4}{5}$, etc.). They wrote all fractions as the sum of different unit fractions, for example:

$$\frac{3}{4} = \frac{1}{2} + \frac{1}{4}$$

$$\frac{7}{8} = \frac{1}{2} + \frac{1}{4} + \frac{1}{8}$$



22. Die Egiptenare van die antieke tyd het slegs eenheids-breuke soos $\frac{1}{7}$ en $\frac{1}{5}$ gebruik (maar nie $\frac{2}{7}$, $\frac{4}{5}$, ens. nie). Hulle het alle breuke as die som van verskillende eenheidsbreuke geskryf, byvoorbeeld:

$$\frac{3}{4} = \frac{1}{2} + \frac{1}{4}$$

$$\frac{7}{8} = \frac{1}{2} + \frac{1}{4} + \frac{1}{8}$$

22. Mandulo amaJipethe ayesebenzisa amaqhezu anesinye njengala $\frac{1}{7}$ no $\frac{1}{5}$ kodwa engenazo ezi $\frac{2}{7}$, $\frac{4}{5}$, njalo njalo. Ayebonakalisa amanye amaqhezu ngoluhlobo:

$$\frac{3}{4} = \frac{1}{2} + \frac{1}{4}$$

$$\frac{7}{8} = \frac{1}{2} + \frac{1}{4} + \frac{1}{8}$$

Which one of the following is the correct way to write $\frac{7}{9}$ in the ancient Egyptian way?

(A) $\frac{1}{2} + \frac{1}{3} - \frac{1}{18}$

(B) $\frac{1}{2} + \frac{1}{9} + \frac{1}{18}$

Watter een van die volgende is die korrekte manier om $\frac{7}{9}$ op die antieke Egiptiese manier te skryf?

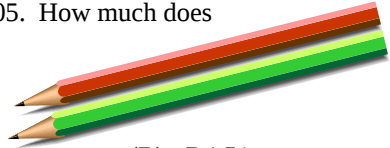
(C) $\frac{1}{9} + \frac{1}{18} + \frac{15}{36}$

(D) $\frac{1}{2} + \frac{1}{4} + \frac{1}{36}$

Ngoluphi uhlobo elibonakalisa eli qhezu: $\frac{7}{9}$ ngendlela yamandulo yamaJipethe?

(E) None of these
Nie een hiervan nie
Ayikho kwezi

23. Jerry wanted to purchase 2 dozen pencils and a pen. Altogether, these items cost R48,85, but she did not have enough money. So she purchased 8 fewer pencils and paid R36,05. How much does a pen cost?



(A) R10,45

(B) R4,51

23. Jerry wou 2 dosyn potlode en 'n pen koop. Dit sou altesaam R48,45 kos, maar sy het nie genoeg geld nie. Sy koop toe 8 minder potlode en betaal R36,05 daarvoor. Hoeveel kos 'n pen?



(C) R12,40

(D) R24,80

23. U Jerry wayefuna ukuthenga i dazini ezi 2 ze pensile kunye ne peni. Zizonke ezi zinto zixabisa ama R48,85, kodwa wayengenayo imali eyaneleyo? Kungoko wagqiba ekubeni athenge inani elincinane ngesi 8 se pensile aze ahlawule ama R36,05. Ingaba ipeni nganye iyakuxabisa malini na?

None of these

(E) Nie een hiervan nie Ayikho kwezi

24. Vusi, Thandi and Michael went to buy some snacks. The table shows what they bought and how much it cost. How much did one chocolate cost?

24. Vusi, Thandi en Michael het lekkergoed gaan koop. Die tabel toon wat hulle gekoop het en wat dit gekos het. Hoeveel het een sjokolade gekos?

	Chocolate	Gum	Juice	Total
Vusi	0	2	2	R10
Thandi	1	1	1	R9
Michael	2	2		R12

(A) R2

(B) R3

(C) R4

(D) R5

(E) R6

24. U Vusi, u Thandi kunye no Michael bayokuthenga izmuncumuncu. Izinto abazithengayo kunye namaxabiso azo abonisiwe kule tafle yamanani, Ingaba itshokoleti enye ixabisa malini?

25. $3!$ means $3 \times 2 \times 1$

$5!$ means $5 \times 4 \times 3 \times 2 \times 1$

Calculate $\frac{2000! \times 2001!}{1999! \times 2000!}$

(A) 2

(B) 2003

25. $3!$ beteken $3 \times 2 \times 1$

$5!$ beteken $5 \times 4 \times 3 \times 2 \times 1$

Bereken $\frac{2000! \times 2001!}{1999! \times 2000!}$

(C) 4 002 000

(D) 4 000 000

25. Isi $3!$ sithetha $3 \times 2 \times 1$

Isi $5!$ sithetha $5 \times 4 \times 3 \times 2 \times 1$

Isiphumo sika $\frac{2000! \times 2001!}{1999! \times 2000!}$ ngu

(E) 4 000 200