

Mathematics Challenge

GRADE 5 FIRST ROUND
18 SEPTEMBER 2002

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 EERSTE RONDE
18 SEPTEMBER 2002

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!

Umceli-mnjeni Ngezibalo

GRADE 5 UMJIKELO WOKUQALA
18 SEPTEMBA 2002

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?

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

| | | | |
|---------------|---------|---------------|---------|
| 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 |

(A) Ben Bailey

(B) Ivan Arends

(C) Peter Davids

(D) John Mbeki

(E) Garry Smith

2. A watch gains 30 seconds every six hours. How many minutes will it gain in a week?

2. 'n Horlosie wen 30 sekondes elke ses uur. Hoeveel minute sal dit in 'n week wen?

2. Iwotshi ithi ibe phambili ngemizuwana engama 30 rhoqa emva kweeyure ezi 6. Mingaphi imizuzu ezakubaphambili ngayo emva kweveki enye?

(A) 3

(B) 30

(C) 60

(D) 7

(E) 14



In cooperation with the
Western Cape Education Department
Gauteng Education Department

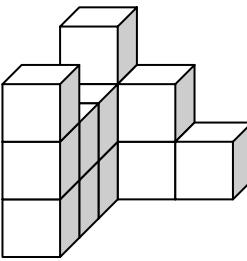
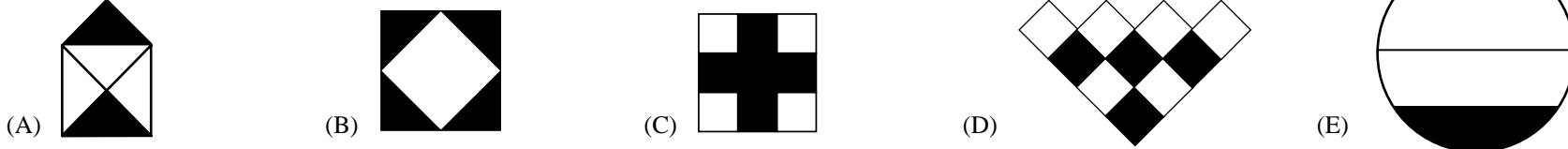
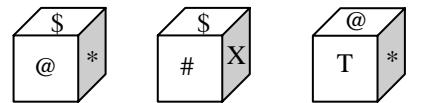
Nasou Via Afrika



CASIO

RUMEUS

Research Unit for Mathematics Education
of the University of Stellenbosch

3. How many blocks did Peter use to build this shape? 3. Hoeveel blokkies het Peter gebruik om hierdie vorm te bou?
- 
- (A) 11 (B) 23 (C) 13 (D) 15 (E) 17
-
4. In which one of the following is half of the figure shaded? 4. In watter een van die volgende is die helfte van die figuur verdonker?
- 
- (A) (B) (C) (D) (E)
-
5. Three different views of the same cube are shown below. Which symbol will be opposite \$?
5. Drie verskillende aansigte van dieselfde blokkie word hieronder gewys. Watter simbool sal oorkant \$ wees?
- 
- (A) @ (B) * (C) # (D) T (E) X
-
6. A box with 30 chocolates weighs 1,1 kg. If 12 chocolates are taken out, it weighs 680 g. How much does the empty box weigh?
6. 'n Doos met 30 sjokolades in weeg 1,1 kg. As 12 sjokolades uitgehaal word, weeg dit 680 g. Hoeveel weeg die leë doos?
- (A) 420 g (B) 35 g (C) 40 g (D) 50 g (E) None of these
 (E) Nie een hiervan nie
 Awukho kule
-

7. The numbers in this row are according to a certain pattern. Which number is missing?

7 ; 21 ; ... ; 189 ; 567

(A) 28

(B) 35

8. When the items in a box are put in groups of 3 or 5 or 6, there is always one item left over. How many items are in the box if there are fewer than 50?

(A) 16

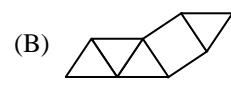
(B) 29

9. Susie has 25 marbles less than Sam. Together they have 105 marbles. How many marbles does Sam have?

(A) 40

(B) 65

10. If the pyramid below is folded down flat, what shape is possible?



11. What is the smallest number of colours needed to paint the six sides of a block in such a way that sides which touch are not painted the same colour?

(A) 6

(B) 3

7. Die getalle in die ry is volgens 'n sekere patroon. Watter getal is uitgelaat?

7 ; 21 ; ... ; 189 ; 567

(C) 42

(D) 63

(E) 399

8. Wanneer die items in 'n doos in groepies van 3 of 5 of 6 geplaas word, is daar elke keer een oor. Hoeveel items is daar in die doos as daar minder as 50 is?

(C) 30

(D) 31

(E) 15

9. Susie het 25 albasters minder as Sam. Saam het hulle 105 albasters. Hoeveel albasters het Sam?

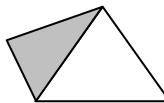
(C) 60

(D) 77

9. U Susie unamabhastile angama 25 ngaphantsi kwaka Sam. Amabhastile abo bebocabini ali 105. Mangaphi amabhastile ka Sam?

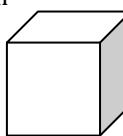
(E) 45

10. As die piramide hieronder plat oopgevou word, watter vorm is moontlik?



10. Ukuba le piramidi ingezantsi isongwe yamcaba, ngowuphi kule mizobo ebiya kubonakala inguwo?

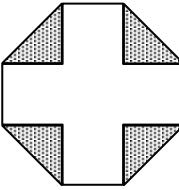
None of these
(E) Nie een hiervan nie
Ayiko kwezi



11. Zingaphi ezona ndlela zimbalwa zokudyobha ngepeyinti ibloko emacula mathandathu, ukuze amacula ahlanganayo angadyojwa ngombala omnye?

(D) 2

(E) 4

-
- | | | |
|---|--|---|
| <p>12. In 10 year's time the combined age of 4 sisters will be 100. What is their combined age now?</p> <p>(A) 90 (B) 80 (C) 70 (D) 60</p> | <p>12. Oor tien jaar sal die gesamentlike ouderdom van 4 susters 100 wees. Wat is hulle gesamentlike ouderdom nou?</p> <p>(C) 70 (D) 60</p> | <p>12. Kwiminyaka eli 10 ezayo isiphumo seminyaka yobudala sodade aba 4 siyakuba li 100. Ingaba isiphumo seminyaka yabo yobudala singakanani namhlanje?</p> <p>(E) 50</p> |
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|--|--|--|
| <p>13. What fraction of this figure has been shaded?</p> <p>(A) $\frac{1}{4}$ (B) $\frac{1}{3}$ (C) $\frac{4}{9}$ (D) $\frac{2}{7}$</p> | <p>13. Watter breuk van die figuur is verdonker?</p>  | <p>13. Liqhezu elingakanani lalomzobo elithe lenziwa mnyama?</p> <p>None of these</p> <p>(E) Nie een hiervan nie</p> <p>Ayikho kwezi</p> |
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| <p>14. 40 children were asked whether they liked chocolate. 4 pupils have no opinion. The rest are divided into 2 equal groups of which the one group likes chocolate and the other group does not like chocolate. How many children like chocolate?</p> <p>(A) 26 (B) 20 (C) 18 (D) 11</p> | <p>14. 40 Kinders is gevra of hulle van sjokolade hou. 4 leerlinge het geen opinie nie. Die res is verdeel in 2 gelyke groepe waarvan die een groep van sjokolade hou en die ander groep nie. Hoeveel kinders hou van sjokolade?</p> | <p>14. Bayi-40 abantwana abasegumbini lokufundela. Abayi-4 abakhethi nto, abanye bonke bohluleke bangamaqela alinganayo amabini. Elinye kulamaqela lithanda iilekese, elinye iqela lelabangazithandiyo. Bangaphi abantwana abathhanda iilekese?</p> <p>(E) 10</p> |
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- | | | |
|---|---|---|
| <p>15. Joe is doing a calculation on his calculator. He then makes a mistake by multiplying by 10 instead of dividing by 10. The calculator answer is 9000. What is the correct answer to Joe's calculation?</p> <p>(A) 0,9 (B) 9 (C) 90 (D) 900</p> | <p>15. Joe is besig met 'n berekening op sy sakrekenaar. Hy vermenigvuldig toe per ongeluk met 10 toe hy moes deel deur 10. Die sakrekenaarantwoord is 9000. Wat is die korrekte antwoord vir Joe se berekening?</p>  | <p>15. U Joe ubala ngecalculator yakhe ngokomyalelo othile. Uthi enze impazamo yokuphindaphinda nge 10 endaweni yokwahlula nge 10. Isiphumo asifumanayo kwicalculator ngama 9000. Sesiphi esona siphuma sisiso ekufuneka u Joe esifumene?</p> <p>(E) 90 000</p> |
|---|---|---|
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- | | | |
|---|---|--|
| <p>16. Manual must number the 100 room doors in a new hotel with plastic digits, from room 1 to room 100. How many digits 1 does he need?</p> <p>(A) 10 (B) 19 (C) 20 (D) 21</p> | <p>16. Manual moet die 100 kamerdeure in 'n nuwe hotel met plastiekstellers nommer, van kamer 1 tot kamer 100. Hoeveel stellers 1 het hy nodig?</p> | <p>16. U Manual kufuneka abhale iinombolo zamagumbi ehotele esebezisa amanani enziwe zii dijiti ezenziwe nge plastiki, esukela kwigumbi elinenombolo esisi 1 ukuya kwigumbi elinembolo eli 100. Zingaphi iidijiti ezibhalwe isi 1 azidingga?</p> <p>(E) 22</p> |
|---|---|--|

17. The desks in a classroom are arranged in straight rows with the same number of desks in each row. Unless someone is absent, each desk is filled. Masaki is in the second row from the front and the fourth row from the back. She is also the third student from the left end of the row and the fifth student from the right. How many students are in the class?

(A) 48

(B) 35

(C) 30

(D) 24

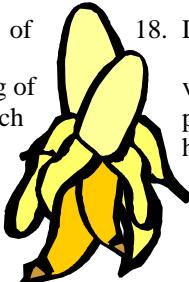
17. Die banke in 'n klaskamer staan in ewe lang reguit rye. Behalwe as iemand afwesig is, is al die banke gevul. Masaki sit in die tweede ry van voor af en in die vierde ry van agter af. Sy is ook die derde leerling van links af en die vyfde leerling van regs af. Hoeveel leerlinge is daar in die klas?



18. The mass of the peel of a banana is about $\frac{1}{8}$ of the total mass of the banana. If you buy 3 kg of bananas at 90c per kilogram, about how much are you paying for the banana peel?

(A) 34c

(B) 30c



18. Die massa van die skil van 'n piesang is omstreng $\frac{1}{8}$ van die totale massa van die piesang. As jy 3 kg piesangs koop teen 90c per kilogram, omstreng hoeveel betaal jy vir die piesangskil?

(C) 27c

(D) 83c

19. 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?

(A) 140

(B) 150



(C) 153

(D) 155

20. The sum of the three digits of a three-digit number is 25. How many such three-digit numbers are there?

(A) 2

(B) 4

(C) 6

(D) 8

17. Iidesika ezikwigumbi lokufundela zimiswe ngokwemigca ethe ngqo kukho inani elifanayo leedesika kumgca ngamnye.. Ngaphandle kokuba kukho ongekhoyo, zonke ziba nomntu ohleli kuzo. Umasaki uhlala kumgca wesibini ukusuka ngaphambili nowesine ukusuka ngasemva. Ukwangumfundu wesithathu ukusuka kwisiphelo sasekhohlo somgca abe ngowesihlanu ukusuka ekunene. Bangaphi abafundi abakwigumbi elo?

Nie genoeg inligting nie

(E) Not enough information
Akukho nkczelo yaneleyo

18. Ixolo le bhana linobunzima obusi $\frac{1}{8}$ sobunzima bebbhana liphelele. Ukuba uthenga isi 3 kg zebbanana ezixabisa ama 90c ngesi 1kg, yimalini othi uiyhlawulele amaxolo ezo bhana?

None of these

(E) Nie een hiervan nie
Awukho kule

19. 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?

None of these

(E) Nie een hiervan nie
Ayikho kwezi

20. Ii dijithi zenani eline dijithi ezintathu ziba ngama 25 xa zidityanisiwe. Mangaphi amanani anjalo ane dijithi ezintathu anokwenzeka?

(E) 10

21. The year 2002 is interesting, because it reads the same backwards and forwards. How many such years are there in this century?

(A) 1

(B) 2

22. Using the usual coins in circulation, what is the smallest amount that *cannot* be made using only 3 or less coins?

(A) 9c

(B) 13c

23. In three years Thandi will be three times as old as she was three years ago. How old is Thandi now?

(A) 6

(B) 9

24. Below is the street plan of Hitown. Andile, Ben and Charles are at intersections A, B and C. For the boys to meet at intersection D, they have to walk 9 blocks altogether. They want to meet at another intersection, so that they will have to walk the shortest distance. Altogether how many blocks will they have to walk to this intersection?

(A) 5

(B) 6

25. In the street plan in question 24, how many different routes of 4 blocks can Andile take to reach Ben?

(A) 2

(B) 4

21. Die jaar 2002 is interessant, want dit lees dieselfde van links en van regs. Hoeveel sulke jare is daar in hierdie eeu?

(C) 3

(D) 4

22. Deur gebruik te maak van die gewone muntstukke in omgang, wat is die kleinste bedrag wat *nie* gemaak kan word deur net 3 of minder muntstukke te gebruik nie?

(C) 16c

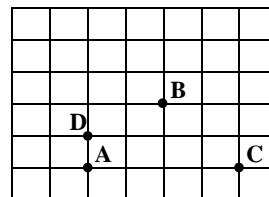
(D) 18c

23. Oor drie jaar sal Thandi drie keer so oud wees as wat sy drie jaar gelede was. Hoe oud is Thandi nou?

(C) 12

(D) 18

24. Hieronder is 'n straatplan van Hitown. Andile, Ben en Charles is op straathoek A, B en C. Om op straathoek D te ontmoet, moet hulle saam 9 blokke loop. Hulle wil op 'n ander straathoek ontmoet sodat hulle die korste moontlike afstand loop. Altesaam hoeveel blokke moet hulle na daardie straathoek loop?



(C) 7

(D) 8

(E) 10

25. Verwys na die straatplan in vraag 24. Hoeveel verskillende roetes van 4 blokke kan Andile volg om by Ben uit te kom?

(C) 5

(D) 6

21. Unyaka wama 2002 ungunyaka onika umdra, kuba ufundeka ngendlela efanayo xa usiya ngemva naxa usiya ngaphambili? Mingaphi iminyaka efanayo eyakuthi ibekho kule nkulungwane?

(E) 5

22. Xa kusetyenziswa iinkozo zemali eziqhelekiyo, leliphi elona xabiso lincanane elingenakho ukwenziwa xa kuthathwe xa kuthathwe kuphela isi 3 nangaphantsi senkozo zemali?

None of these

(E) Nie een hiervan nie
Ayikho kwezi

23. Kwiminyaka emithathu ezayo, uThandi uyakube eyiphinda- kathathu iminyaka abe enayo kwiminyaka emithathu edlulileyo. Mingaphi iminyaka ka Thandi?

(E) 3

24. Ngaphantsi yi plan yesitalato sase Hitown. Uandile, Uben kunye no Charles bakwikona uA, B konye no C besi sitalato. Ukuze lamakhwenkwe adibane kwikona u D, kufuneka ehambe umgama we bloko ezingama 9. Bafuna ukudibanela kwikona apho bazakuthi bahambe umgama ozizona bloko zimbalwa. Xa bebonke zingaphi iibloko ekufuneka bezihamble ukuze bafike kule kona?

25. Jonga le plani ingasentla. Zingaphi iindlela ezahlukeneyo ezimngama uzibloko ezi 4 uAndile anokuzithatha ukuze afikelele ku Ben?

(E) 7