Mathematics Challenge

GRADE 5 FINAL ROUND
12 OCTOBER 2004

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!

1. This open box is 8 cm long, 4 cm wide and 2 cm high. How many of the small 1 cm by 1 cm by 1 cm cubes can be packed into the box?

(A) 32 (B) 14

2. Which one of the following numbers will appear in the sequence

7; 14; 21; 28; ...?

(A) 4236 (B) 4224

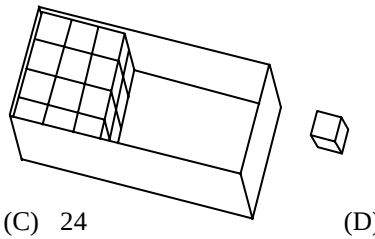
Wiskunde-uitdaging

GRAAD 5 FINALE RONDE
12 OKTOBER 2004

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!

1. Hierdie oop boks is 8 cm lank, 4 cm breed en 2 cm hoog. Hoeveel van die klein 1 cm by 1 cm by 1 cm blokkies kan in die boks inpas?



(C) 24 (D) 64

2. Watter een van die volgende getalle sal voorkom in die getalry

7; 14; 21; 28; ...?

(C) 4235 (D) 4253

Umceli-mngeni Ngezibalo

GRADE 5 UMJIKELO WOKUGQIBELA
12 OKTHOBHA 2004

QAPHELA:

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

1. Le bhokisi ivulekileyo inobude obusi 8cm, ububanzi obusi 4cm kunye nomphakamo osisi 2cm. Ingaba zingaphi iibhokisana ezinomlinganiselo 1 cm by 1 cm by 1 cm ezinokuthi zifakwe ziyizalise lebhokisi?

(E) 48

2. Leliphi kula manani alandelayo elizakuvela kolu luhlu

7; 14; 21; 28; ...?

(E) 2442

Western Cape
Wes-Kaap
Ntshona-Koloni
AMESA
The Association for Mathematics Education of South Africa

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. A train departs from Bellville station at 09:47 and arrives in Cape Town at 10:18. Another train on the same route leaves Bellville at 12:30. At what time does it arrive in Cape Town?

(A) 13:18 (B) 13:01 (C) 01:01 (D) 13:12 (E) 12:51

3. 'n Trein vertrek om 09:47 van Bellville-stasie en kom om 10:18 in Kaapstad aan. 'n Ander trein op dieselfde roete vertrek om 12:30 van Bellville. Hoe laat kom dit in Kaapstad aan?

3. Uloliwe usukela kwisikhululo sase Bellville ngemizuzu engama 09:47 ufike kwisikhululo sase Kapa ngemizuzu engama 10:18. Omnye uloliwe yena uphuma e Bellville nge 12:30. Uyakuthi afike ngabani ixesha eKapa?

4. 500 bottles of wine must be packed into cartons. Each carton holds 12 bottles. How many cartons are needed?

(A) 41 (B) 42 (C) $41\frac{2}{3}$ (D) 41,67 (E) None of these / Nie een hiervan nie / Ayiko kwezi

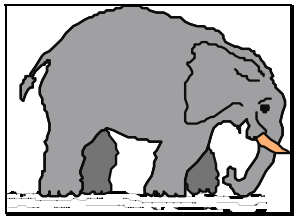
4. 500 Bottels wyn moet in kartonne verpak word. Elke karton hou 12 bottels. Hoeveel kartonne word benodig?

4. Iibhotile zewayini ezingama 500 kufuneka zipakishwe kwiibhokisana. Ibhokisana nganye inokuthwala iibhotile ezili 12. Zingaphi iibhokisana ezifunekayo?

5. This photo of 120 mm × 90 mm is enlarged to 360 mm × 270 mm. The elephant's tail in the smaller photo is 22 mm long. How long is its tail in the larger photo?

(A) 33 mm (B) 44 mm (C) 55 mm (D) 66 mm (E) 99 mm

5. Hierdie foto van 120 mm × 90 mm word vergroot na 360 mm × 270 mm. As die olifant se stert in die klein foto 22 mm lank is, hoe lank is sy stert in die vergroting?



5. Le foto ebukhulu bungma 120 mm × 90 mm iye yakhuliswa yangama 360 mm × 270 mm. Umsila wendlovu kwifoto encinane ungama 22mm ubude. Ingaba uyakubangakanani umsila wayo kwifoto enkulu?

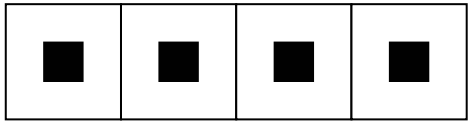
6. In an election 39 218 votes were cast for two candidates. The winner had 1 002 votes more than the loser. How many votes did the winner receive?

(A) 19 108 (B) 20 182 (C) 38 216 (D) 20 110 (E) 19 609

6. In ‘n verkiesing is 39 218 stemme uitgebring vir twee kandidate. Die wenner het 1 002 stemme meer as die verloorder gekry. Hoeveel stemme het die wenner gekry?

6. Kuvoto abantu abangama 39 218 bavotela abagqatswa ababini. Owaphumelelayo waphumelela nge 1 002 levoti ukudlula ongazange aphumelele. Ingaba xa zizonke zingaphi iivoti ezifunyenwe ngumntu owaphumelelayo?

7. What fraction of this figure is shaded?



(A) $\frac{1}{4}$ (B) $\frac{4}{32}$ (C) $\frac{4}{28}$ (D) $\frac{1}{9}$ (E) $\frac{1}{8}$

7. Watter breuk van hierdie figuur is verdonker?

7. Liqhezu elingakanani lalomzobo elithe lenziwa mnyama?

8. Halima is reading a book. Chapter 7 begins on page 246 and ends on page 274. How many pages are there in chapter 7?

(A) 274 (B) 28 (C) 15 (D) 29 (E) 30

8. Halima lees 'n boek. Hoofstuk 7 begin op bladsy 246 en eindig op bladsy 274. Hoeveel bladsye is daar in hoofstuk 7?

8. UHalima ufunda incwadi. Isahluko sesixhenxe siqala kwiphepha le-246, liphele kwiphepha le-274. Mangaphi amaphepha esi sahluko?

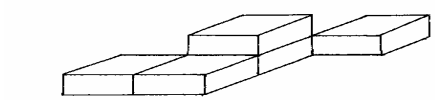
9. A light flashes every six minutes and a bell rings every eight minutes. If the light flashes as the bell rings, after how many minutes will this happen again at the same time?

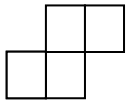
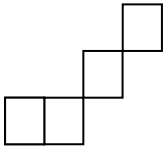
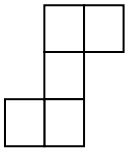
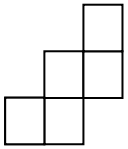
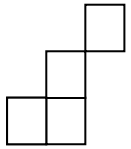
(A) 14 (B) 48 (C) 12 (D) 24 (E) 36

9. ’n Lig flits elke 6 minute en ’n klokkie lui elke 8 minute. As die lig flits terwyl die klokkie gelyktydig lui, na hoeveel minute sal dit weer gelyktydig gebeur?

9. Isibane sithi sikhanye rhoqo emva kwemizuz emithandathu ize intsimbi yona ikhale rhoqo emva kwemizuzu esibhozo. Ukuba isibane sithi sikhanye xa intsimbi ikhalayo, kuyakudlula imizuzu emingaphi ukuze lonto iphinde yenzeke kwakhona?

10. What will you see if you look at this block building directly from above?



(A)  (B)  (C)  (D)  (E) 

10. Wat sal jy sien as jy direk van bo na hierdie blokgebou kyk?

10. Ukuba lomfanekiso wesi sakhiwo uwujongele ngqo ngasentla unokubona umzobo onjani?

11. There is a third of a litre of milk left over. Markus drinks half of that. How many litres of milk is now left over?

(A) $\frac{1}{6}$ (B) $\frac{2}{5}$ (C) $\frac{1}{5}$ (D) $\frac{1}{3}$ (E) $\frac{1}{4}$

11. Daar is ’n derde van ’n liter melk oor. Markus drink helfte daarvan. Hoeveel liter melk bly nou oor?

11. Kukho isinye kwisithathu selitha yobisi oluseleyo. U Markus wathi wasela isiqingatha solu bisi luseleyo. Ziingaphi iilitha zobisi oluseleyo ngoku?

12. To make apricot yoghurt you need 5 parts of yoghurt to 1 part of apricots. How many litres of yoghurt are needed to make 30 litres of apricot yoghurt?

(A) 6 (B) 5 (C) 25 (D) 24 (E) 35

12. Om appelkoosjogurt te maak is 5 dele jogurt nodig vir 1 deel appelkose. Hoeveel liter jogurt is nodig om 30 liter appelkoosjogurt te maak?

12. Ukwenza i-yogathi ye-apricot kufuneka usebenzise isihlanu seeyogathi kwisinye se-apricot. Zingaphi iilitha zeyogathi ezifunekayo ukwenza iilitha eziyi-30 zejogathi ye-apricot?

13. There are a total of seven bicycles and tricycles altogether in the shop window. They have a total of 19 wheels. How many bicycles are there?

(A) 4 (B) 2 (C) 3 (D) 7 (E) 5

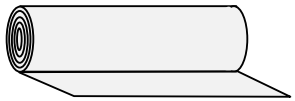
13. By ‘n fietswinkel staan daar altesaam sewe fietse en driewiele. Hulle het altesaam 19 wiele. Hoeveel fietse is daar?

13. Kukho isi 7 esihlanganisa siibhayisikili kunye ne-tricycles kwifestile yevenkile. Zizonke ezi zinto zinamavili ali 19. Zingaphi iibhayisikili ezikhoyo?

14. After one-tenth of a roll of material was cut off, 99 m of material remains on the roll. How long was the original roll of material?

(A) 90 m (B) 100 m (C) 110 m (D) 108 m (E) 109 m

14. Na een tiende van ’n rol materiaal afgesny is, bly daar 99 m materiaal oor. Hoe lank was die oorspronklike rol materiaal?

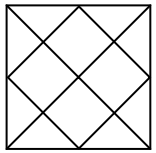


14. Emva kokuba kusikwe isinye-eshumini selaphu ama 99 m zeli laphu asala engasikwanga. Lalilide kangakanani elilaphu lingekasikwa?

15. How many triangles are there in this figure?

(A) 8 (B) 12 (C) 16 (D) 20 (E) Nie een hiervan nie / None of these / Ayikho kwezi

15. Hoeveel driehoeke is daar in hierdie figuur?



15. Bangaphi onxantathu abakulo mzobo?i

16. A man starts walking from A towards B, which is 12 km away. Thirty minutes later his wife also starts walking from A to B. If the man walks at 4 km in 1 hour and his wife walks at 6 km in 1 hour, how far from A will she catch up with him?

(A) 6 km (B) 7 km (C) 8 km (D) 9 k (E) 10 km

16. 'n Man begin stap van A na B, wat 12 km weg is. Dertig minute later begin sy vrou ook stap van A na B. As die man loop teen 4 km in 1 uur en sy vrou teen 6 km in 1 uur, hoe ver van A sal sy hom inhaal?

16. Indoda ithi ihambe isukela ku A isiya ku B, okumgama oli 12 km. Emva kwemizuzu engama 30 unkosikazi wakhe naye uthi ahambe esukela ku A esiya ku B. Ukuba isantya sokuhamba sendoda sisi 4 km ngeyure size esenkosikazi sona sibe sisi 6km ngeyure, kuya kuba kukude kangakanani ukusuka ku A apho le nkosikazi iza kuthi ihlangane nendoda yayo?

17. A child has bought 10 lollipops, all at the same price. If each lollipop had cost 5 cent less, he would have got 2 lollipops more for the same total cost. What did he pay for the 10 lollipops?

(A) 30c (B) R3 (C) R2,40 (D) R2,60 (E) R2,70

17. ’n Kind get 10 lollipops gekoop, almal teen dieselfde prys. As elke lollipop 5 sent minder gekos het, sou hy 2 lollipops meer vir dieselfde bedrag gekry het. Wat het hy vir die 10 lollipops betaal?

17. Umntwana uthenge iilekese(lollipops) ezilishumi ngexabiso elinye zizonke. Ukubangaba ixabiso lelekese enye lehliswe ngesenti ezintlanu (5c) ubezakufumana iilekese ezongezwe ngezimbini (2 lollipops) ngelixabiso xa uqhathanisa nentengo yokuqala. Uhlawule malini ngeelekese (lollipops) ezilishumi? Yibhale impendulo apha ngokucacileyo.

18. Thembi and Rashid started a fitness programme, and decided to jog 3 street blocks further each day. On the first day they jogged 5 blocks. Today they jogged 44 blocks. For how many days have they been jogging?

(A) 11 (B) 12 (C) 13 (D) 14 (E) 15

18. Thembi en Rashid het 'n fiksheidsprogram begin, en het besluit om elke dag 3 straatblokke verder te draf. Op die eerste dag het hulle 5 blokke gedraf. Vandag het hulle 44 blokke gedraf. Vir hoeveel dae draf hulle nou al?

18. U Thembi no Rashid baqala ukwenza indlela yokomeleza amalungu omzimba, bagqiba ekubeni ukuba babaleke umgama odlula ibloko yezitalato ezintathu ngemini nganye ukudlula usuku olungaphambili. Kusuku lokuqala babaleka ibloko ezi 5. Namhlanje babaleke ibloko ezingama 44. Ucinga ukuba zingaphi iintsuku abathe babaleka kuzo?

19. In the previous question: How many blocks did they jog in total?

(A) 343 (B) 299 (C) 258 (D) 390 (E) 83

19. In die vorige vraag: Hoeveel blokke het hulle al altesaam gedraf?

19. Ngokombuzo ongentla: Xa zidityaniswa ibloko abazibalekayo ngosuku zingaphi zizonke?

20. Bradley has a whole bag of 10c and 20c coins. In how many different ways can he form R1,30?

(A) 4 (B) 6 (C) 1 (D) 10 (E) 7

20. Bradley het ‘n hele sak 10c en 20c muntstukke. Op hoeveel verskillende maniere kan hy R1,30 vorm?

20. Ubradley unengxowa egcweleyo yenkozo zemali ze 10c nezama 20c. Ingaba zingaphi iindlela angazihlanganisa ngazo ezi nkozo zemali ukuze akhuphe I R1,30?

21. At *Pizza Inn* 2 small pizzas and one large pizza costs the same as 5 small pizzas. If a small pizza costs R11,50, what does a large pizza cost?

(A) R28,75 (B) R23 (C) R27,50 (D) R34,50 (E) None of these / Nie een hiervan nie / Ayiko kwezi

21. By *Pizza Inn* kos 2 klein pizzas en een groot pizza net soveel as 5 klein pizzas. As ‘n klein pizza R11,50 kos, wat kos ‘n groot pizza?

21. Kwivenkile ye Pizza isi2 se pizza ezincinane kunye nenye i pizza enkulu zixabisa ngokufanayo ne pizza ezi 5 ezincinane.. Ukuba i pizza encinane iixabisa i R11,50, ingaba ipizza enkulu ixabisa malini?

22. A, B, C, D, E and F are six towns situated as follows:

D is 30 km East of F
B is 20 km West of C
A is 10 km West of E
F is 10 km South of A
D is 20 km North of C

How far is B from E?

(A) 30 km (B) 20 km (C) 10 km (D) 40 km (E) 50 km

22. Ses dorpe A, B, C, D, E en F is soos volg geleë is:

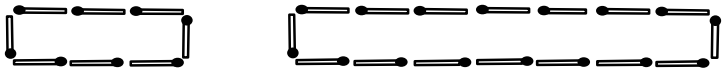
D is 30 km Oos van F
B is 20 km Wes van C
A is 10 km Wes van E
F is 10 km Suid van A
D is 20 km Noord van C

Hoe ver is B van E?

22. U A, B, C, D, E kunye no F zidolophu ezintandathu ezishiyana ngale migama.
I D ungama 30 km kwimpuma ye F
I B ingama 20 km kwintshona ye C
I A ingama 10 km kwintshona ye E
I F ingama 10 km kumazantsi e A
I D ingama 20 km kumantla e C

Ingaba ikude kangakanani idolophu B kwidiolophu E?

23. John builds rectangles as shown. When the length of the rectangle is 3, there are 8 matches. When the length of the rectangle is 7, there are 16 matches. How many matches does he need to make a rectangle with length 20?



(A) 48 (B) 42 (C) 80 (D) 46 (E) 44

23. John bou reghoeke soos getoon. As die lengte van die reghoek 3 is, gebruik hy 8 vuurhoutjies en as die lengte 7 is, gebruik hy 16 vuurhoutjies. Hoeveel vuurhoutjies het hy nodig om ‘n reghoek met lengte 20 te bou?

23. UJona wakha esebenzisa iirekhethengile(rectangles) njengokuba ulathisiwe. Xa ubude becala elide liyisi-3, usebenzisa izinti zikametshisi eziyisi-8. Xa ical elide liyi-7, usebenzisa izinti zikametshisi ezili-16. Kufuneka izinti zikametshisi ezingaphi xa icala elide lingama-20 ubude? Phendula uyibhale impendulo yakho kwesi sikhewu usinikiweyo.

24. In question 23, if John has 220 matches, what will the length of the rectangle be if he uses all the matches?

(A) 108 (B) 109 (C) 110 (D) 112 (E) 114

24. In vraag 23: as John 220 vuurhoutjies het, wat sal die lengte van die reghoek wees as hy al die vuurhoutjies gebruik?

24. Ngokubhekiselele kumbuzo 23, xa uJona esebenzisa iirekhthengile (rectangles), ngeyiphi impendulo kwezi uzinikiweyo angeke akwazi ukuyisebenzisa ekwakheni iphatheni (pattern) yakhe? Cinga ze ukhethe efanelekileyo impendulo kwezi uzinikiweyo.

25. Refer to question 23. John built many different rectangles. Which of the numbers below *cannot* be the number of matches he used?

(A) 362 (B) 458 (C) 630 (D) 821 (E) 286

25. Verwys na vraag 23: John het baie verskillende groottes reghoeke gebou. Watter van die volgende kan nie die getal vuurhoutjies wees wat hy vir ‘n reghoek gebruik het nie?

25. Kumbuzo we-23 xa uJona enezinti ezili-121, zingaphi izindlu anokuzakha? Zathuza uze nempendulo.