

Mathematics Challenge

GRADE 6 FIRST ROUND

SEPTEMBER 2003

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. The graph shows the number of cartons of milk sold each day of a week at a school. How many cartons of milk did the school sell on Monday?

(A) 20

(B) 21

(C) 22

(D) 24

(E) 25

2. In question 1, how many cartons of milk did the school sell during the whole week?

(A) 125

(B) 113

2. In vraag 1, hoeveel boksies melk het die skool gedurende die hele week verkoop?

(C) 100

(D) 130

2. Kumbuzo 1, zingaphi iibhokisi zobisi ezithe zathengiswa sisikolo kuleveki yonke?

(E) 115



In cooperation with the
Western Cape Education Department
Gauteng Education Department

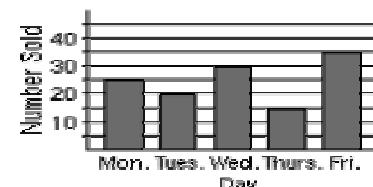
Wiskunde-uitdaging

GRAAD 6 EERSTE RONDE

SEPTEMBER 2003

LET OP:

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



Umceli-mnjeni Ngezibalo

GRADE 6 UMJIKELO WOKUQALA

SEPTEMBA 2003

QAPHELA:

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

1. Le grafu ibonisa inani leebhokisi zobisi ezithe zathengiswa esikolweni ngosuku ngalunye lweeveki. Ziingaphi iibhokisi zobisi ezithe zathengiswa sisikolo ngoMvulo?

Nasou Via Afrika



CASIO

RUMEUS

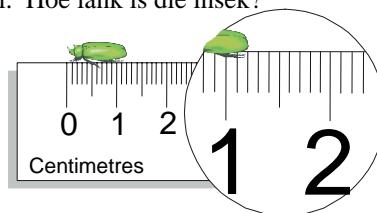
Research Unit for Mathematics Education
of the University of Stellenbosch

3. The sketch shows an enlargement of an insect on a ruler. How long is the insect?

(A) 1,2 cm

(B) 1,12 cm

3. Die skets toon 'n vergroting van 'n insek op 'n liniaal. Hoe lank is die insek?



(D) 1,02 cm

(E) 0,2 cm

3. Lo mzobo ubonisa isinambuzana esenziew sasikhulu sikwi-rula. Ingaba side kanganani esi sinambuzana?

4. What is the next number in this pattern?

0,13; 0,12; 0,11; 0,10; ...

(A) 0,01

(B) 0,1

4. Wat is die volgende getal in die patroon?

0,13; 0,12; 0,11; 0,10; ...

(C) 0,09

(D) 0,9

4. Leliphi inani eliza kulandela emva kwala anikiwyeo?

0,13; 0,12; 0,11; 0,10; ...

(E) 0,10

5. Which fraction is the biggest?

(A) $\frac{1}{5}$ (B) $\frac{1}{6}$

5. Watter breuk is die grootste?

(C) $\frac{1}{7}$ (D) $\frac{7}{30}$

5. Leliphi elona qhezu likhulu kula?

(E) $\frac{7}{36}$

6. A grocer bought 15 dozen apples at R2,40 a dozen. She threw away 20 rotten apples and then sold the rest at R2,40 for 8. How much profit did the grocer make?

(A) R12

(B) R1200

6. 'n Kruidenier koop 15 dosyn appels teen R2,40 per dosyn. Sy gooi 20 vrot appels weg en verkoop die res teen R2,40 vir 8. Hoeveel wins maak die kruidenier?

(C) R120

(D) R1,20

6. Umthengisi wokutya wathenga ii dazini ezili 15 zama apile. Wathi wawahla ama apile angama 20 kuba ayebolile, waze wawathengisa ashiyekile ngee R2,40 ipakethe enama apile asi 8. Ingaba ingakanani iprofithi eyathi yenziwa ngulo mthengisi?

None of these

(E) Nie een hiervan nie
Ayikho kwezi

7. This morning at 07:00 my watch was 2 minutes slow, but at 13:00 it was 3 minutes fast! At what time was it exactly correct?

(A) 08:12

(B) 09:12

7. Vanoggend om 07:00 was my horlosie 2 minute agter maar om 13:00 was hy 3 minute voor! Wanneer was my horlosie presies korrek?

(C) 09:24

(D) 09:34

7. Kusasa ng-07:00 iwothsi yam ibingemba ngemizuzu emibini, kodwa ngo-13:00 ibiphambili ngemizuzu eyi-3. Kungokuba ibisexesheni ngabani ixesha?

(E) 09:36

8. On a calculator $1 \div 3$ is 0.33333333. Which one of these numbers also ends in .33333333 when you divide by 3?

(A) 11

(B) 111

8. Op 'n sakrekenaar gee $1 \div 3$ 'n antwoord van 0.33333333. Watter van hierdie getalle eindig ook in 0.33333333 as jy dit met 3 deel?

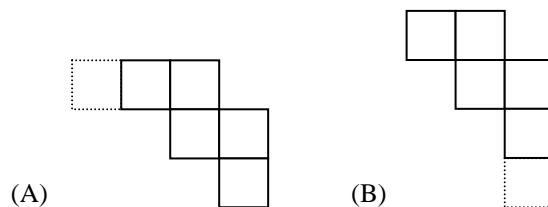
(C) 111111

(D) 11111

8. Ngokwe calculator $1 \div 3$ sikhupha 0.33333333. Leliphi elinye inani nalo eliphela nge .33333333 xa ulohlula ngesi 3?

(E) 1111

9. The net below can be cut out and folded to make a box without a lid. Where could you add another square to the net so that the box has a lid?



10. A thick horizontal line is drawn on the net below as shown. The net is then folded down to form a cube. What figure will the thick line now form?

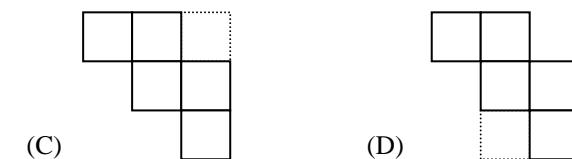
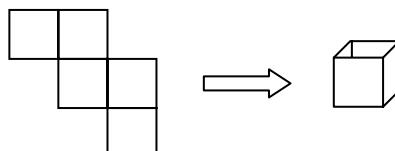
(A) square
vierkant
isikwere

(B) rectangle
reghoek
uxande

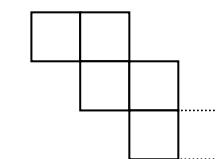
11. A thick diagonal line is drawn on the net below. The net is then folded down to form a cube. If you then look at the cube from different positions, which one is not a correct view?



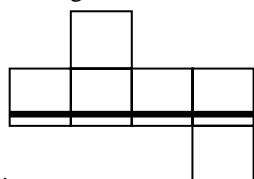
9. Die net hieronder kan gevou word om 'n boks sonder 'n deksel te maak. Waar kan nog 'n vierkant by die net gevoeg word sodat die boks 'n deksel het?



9. Lo mzobo we nethi ungezantsi unokusikwa usongwe wenze ibhokisi engenasiciko. Unokusifakela kweyiphi indawo esinye iskwere kulomzobo wenethi ukuze ibe nesiciko yakube isongiwe?



10. 'n Dik horisontale lyn is op die net hieronder getrek, soos aangedui. Die net word dan gevou om 'n kubus te vorm. Watter figuur vorm die dik lyn nou?



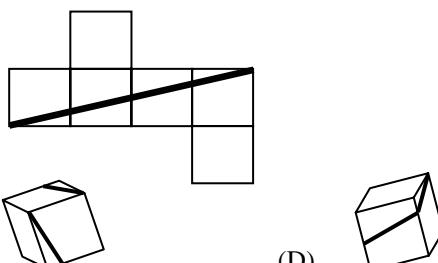
(C) line
lyn
umgca

(D) triangle
driehoek
unxantathu

(E) parallelogram
parallelogram
i paralellogram

10. Umgca ongqingqwa olalisiweyo uthe wazotywa kulomfanekiso ungezantsi. Emva koko lo mfanekiso wathi wagotywa ukuze wakhe ityhubhu. Ingaba ke ngoku lomgca ungqingqwa wona uyawkawha umfanekiso obonisa ntoni?

11. 'n Dik skuinslyn word op die net hieronder getrek. Die net word dan afgevou om 'n kubus te vorm. As jy dan na die kubus kyk vanuit verskillende posisies, watter een is nie 'n korrekte aansig nie?



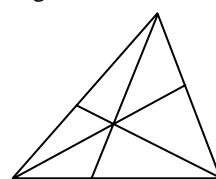
11. Umgca ongqingqwa oxwesileyo uthe wazotywa kulo mfanekiso ungezantsi. Lo mfanekiso uthe wagotywa ukuze wakhe ityhubhu. Ukuba ke ngoko uthi uyiqwalasele le tyhubhu kwindawo ezahlukileyo, yeypiphi engabonisi mfanekiso unguwo?

12. A wooden cube, 2 cm long on each side, has a mass of 100 grams. Another cube of the same wood is 6 cm long on each side. What is its mass?

(A) 1 000 g

(B) 2 700 g

13. How many different triangles (of all sizes) are there in this figure?



(A) 12

(B) 13

(C) 14

(D) 15

(E) 16

14. A combination lock has 4 digits. Each digit can be any of the numbers from 0 to 9. How many different combinations are possible?

(A) 36

(B) 40

(C) 6561

(D) 10 000

(E) 9999

15. How many different ways are there to give someone 10c?

(A) 5

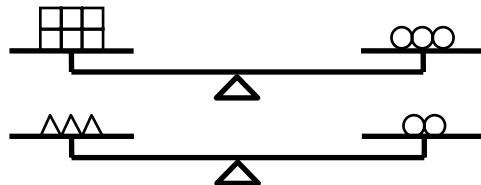
(B) 9

(C) 6

(D) 11

(E) 10

16. In the balances below, how many squares will balance 9 triangles?



(A) 12

(B) 6

(C) 8

(D) 18

(E) 10

12. 'n Houtkubus, 2 cm lank aan elke kant, het 'n massa van 100 gram. 'n Ander kubus van dieselfde hout is 6 cm lank aan elke kant. Wat is sy massa?

(C) 800 g

(D) 900 g

12. Ityhubhu eyenziwe ngokhuni inobude becala ngalinye obusi 2 cm nobunzima be 100 grams. Enye ityhubhu nayo ekwensiwe ngokhuni olunye nolu lwalena ingentla yona inobude obusi 6 cm kwicala ngalinye. Inobunzima obungakanani?

(E) 300 g

13. Hoeveel verskillende driehoede (van alle groottes) is daar in hierdie figuur?

13. Bangaphi oonxantathu abangafaniyo (benobukhulu obungafaniyo) abakhoyo kulo mzobo?

(A) 12

(B) 13

(C) 14

(D) 15

(E) 16

14. 'n Kombinasieslot het 4 syfers. Elke syfer kan enige getal van 0 tot 9 wees. Hoeveel verskillende kombinasies is moontlik?

14. Iqhaga lokutshixa elisebenzisa amanani adibanayo linamanani ama 4. Inani ngalinye linokuba lilo naliphina phakathi ko 0 no 9. Mangaphi amanani anokudityaniswa ngokwahlukileyo anokusetyenziswa?

(C) 6561

(D) 10 000

(E) 9999

15. Op hoeveel verskillende maniere is dit moontlik om iemand 10c te gee?

15. Zingaphi iindlela ezahlukeneyo ezikhoyo ezinokusetyenziswa xa ufunu ukunika umntu i 10c?

(C) 6

(D) 11

(E) 10

16. In die weegskale hieronder, hoeveel vierkante sal 9 driehoede balanseer?

16. Kulo mlinganiselo ungezantsi zingaphi izikwere ezinokulingana ngobunzima noonxantathu abali 9?

(C) 8

(D) 18

(E) 10

17. Which one of the following statements is *not* true?
- (A) All numbers which end in 2 are divisible by 2
 (B) All numbers which end in 5 are divisible by 5
 (C) All numbers which end in 12 are divisible by 4
 (D) All numbers which end in 232 are divisible by 8
 (E) All numbers which end in 63 are divisible by 9
17. Watter een van die volgende stellings is *nie* waar nie?
- (A) Alle getalle wat op 2 eindig is deelbaar deur 2
 (B) Alle getalle wat op 5 eindig is deelbaar deur 5
 (C) Alle getalle wat op 12 eindig is deelbaar deur 4
 (D) Alle getalle wat op 232 eindig is deelbaar deur 8
 (E) Alle getalle wat op 63 eindig is deelbaar deur 9
17. Sesiphi esona sivakalisi siyinyani kwezi zingezants
- (A) Onke amanani aphela ngesi 2 ayohluleka ngesi 2
 (B) Onke amanani aphela ngesi 5 ayohluleka ngesi 5
 (C) Onke amanani aphela nge 12 ayohluleka ngesi 4
 (D) Onke amanani aphela ngama 232 ayohluleka ngesi 8
 (E) Onke amanani aphela ngama 63 ayohluleka ngesi 9
-
18. Corrie and Denise are on opposite ends of a path through a large park. The path is 3570 m long. They begin walking towards each – Corrie walks at a constant speed of 60 metres per minute and Denise walks at a constant 45 metres per minute.
- How far has Corrie walked when they meet?
- (A) 1785 m (B) 1800 m (C) 1860 m (D) 1880 m (E) 2040 m
18. Corrie en Denise is aan teenoorgestelde eindpunte van 'n pad wat deur 'n groot park loop. Die pad is 3570 m lank. Hulle begin na mekaar toe loop – Corrie loop 'n konstante spoed van 60 meter per minuut en Denise loop 'n konstante 45 meter per minuut.
- Hoe ver het Corrie geloop wanneer hulle ontmoet?
18. U Corrie kunye no Denise basekupheleni nasekuqaleni komgaqo onqumla kwipaki enkulu. Lo mgaqo ungama 3750 m ubude. Bathi baqalis ukuhamba bekhwalelana- u Corrie ehamba ngesantya esingaguqukiyo sama 60 ee metre ngomzuzu u Denise naye ehamba ngesantya esingaguqukiyo sama 45 ee metre ngomzuzu. Uyakuba ehambe umgama ongakanani u Corrie xa behlangana?
-
19. In question 18, how many minutes do they walk until they meet?
- (A) 30 (B) 34 (C) 44 (D) 54 (E) None of these
19. In vraag 18, hoeveel minute het hulle geloop voordat hulle ontmoet?
19. Kumbuzo 18, mingaphi imizuzu abayihambayo phambi kokuba bahlangane?
- (E) Nie een hiervan nie
 Ayikho kwezi
-
20. Jackie interviewed 50 Grade 6 learners about their TV preferences. 41 said they like comedy, 35 said they enjoy action films and 30 said they like both. How many of the learners like neither?
- (A) 11 (B) 20 (C) 16 (D) 4 (E) 0
20. Jackie het 50 graad 6-leerders ondervra oor hul TV voorkeure. 41 sê hulle hou van komedies, 35 sê hulle geniet aksieflik en 30 sê hulle hou van beide. Hoeveel van die leerders hou nie van een van die twee nie?
20. U Jackie wathi wenza udliwano ndlebe nabafundi bebanga lesithandathu abangashumi amahlanu ebabuza ngenkqubo zikamabonakude abazithandayo. Abangama 41 bathi bathanda inkqubo ezihlekisayo, abangama 35 bathi bonwatyiswa zinkqubo apho kuliwayo kuzo baze abangama 30 bona bathi bazithanda zombini ezindidi zenkqubo. Bangaphi abafundi ekungekho nenye kwezindidi zenkqubo abayithandayo?
-
21. The three digits of a three-digit number add up to 3. How many such three-digit numbers are there?
- (A) 3 (B) 4 (C) 6 (D) 8 (E) 5
21. Die som van die drie syfers van 'n driesyfergetal is 3. Hoeveel sulke driesyfergetalle is daar?
21. Ii dijithi zenani eline dijithi ezintathu ziba ngama 3 xa zidityanisiwe. Mangaphi amanani anjalo ane dijithi ezintathu anokwenzeka?

22. The sum of three consecutive whole numbers (e.g. 3, 4 and 5) is 54. What is the product of the three numbers?
- (A) 5814 (B) 4913 (C) 5832 (D) 5841 (E) 5862
23. Six girls have just completed a 400 metres race.
 Elize beat Candy by 6 m
 Ann finished 11 m behind Fay
 Elize finished 2 m ahead of Daphne, but 3 m behind Fay
 Bonnie finished exactly halfway between the first and last person
 In what position did Bonnie finish?
- (A) 1st (B) 2nd (C) 3rd (D) 4th (E) 5th
24. Study the following pattern.
 What is P_{20} ?
- (A) 77 (B) 79 (C) 80 (D) 81 (E) 83
22. Die som van drie opeenvolgende getalle (bv. 3, 4 en 5) is 54. Wat is die produk van die drie getalle?
22. Isiphumo sokudityaniswa kwamanani amathathu azeleyo alandeletanayo (umzekelo u 3, 4 kunye no 5) singama 54. Singubani isiphumo sokuphindaphindwa kwala manani mathathu?
23. Ses meisies het pas 'n 400-meter wedren voltooi.
 Elize het Candy met 6 m gewen
 Ann was 11 m agter Fay
 Elize het 2 m voor Daphne, maar 3 m na Fay klaargemaak
 Bonnie het presies halfpad tussen die eerste en die laaste persoon klaargemaak
 In watter posisie het Bonnie klaargemaak?
23. Amantombazana amathandathu asandula kugqiba kubaleka kumdyarho wama 400 m.
 U Elize wamodlula u Candy ngee metre ezi 6
 U Ann wagqiba ngee metre ezi 11 emva ko Faye
 U Elize wagqiba ngee metre ezi 2 ngaphambi ko Daphne, kodwa waqgiba ngee metre ezi 3 emva ko Faye
 U Bonnie yena wagqiba kanye phakathi ukusukela kumntu wokuqala nowokugqibela
 Ingaba u Bonnie waphuma kwindawo yesingaphi?
24. Bestudeer die volgende patroon.
 Wat is P_{20} ?
- $P_1 = 5$ $P_2 = 9$ $P_3 = 13$
24. Funda ola luhlu lulandelayo.
 Sithini isiphumo sika P_{20} ?
25. Vincent, Winston, Xolile, Yorick and Zander went fishing. Vincent caught 8 more fish than Zander. Winston caught 20, while Xolile and Yorick caught 24 and 18 respectively. They caught a total of 100 fish.
 How many fish did Vincent catch?
- (A) 23 (B) 30 (C) 15 (D) 38 (E) 19
25. Vincent, Winston, Xolile, Yorick en Zander gaan visvang. Vincent vang 8 visse meer as Zander. Winston vang 20, terwyl Xolile en Yorick onderskeidelik 24 en 18 visse vang. Hulle vang altesaam 100 visse.
 Hoeveel visse het Vincent gevang?
25. U Vincent, u Winston, u Xolile, u Yorick kunye no Zander baya kuloba iintlanzi. U Vincent wabambisela ii ntlanzi ezisi 8 ukodlula ezika Zander. U Winston yena wabambisela ezingama 20, ngelixa u Xolile no Yorick babambisela ama 24 ne 18 ngokulandelana.
 Babambisela i 100 lee ntlanzi xa bebonke.
 Zingaphi iintlanzi ezabanjisewa ngu Vincent?