

Mathematics Challenge

GRADE 6 FINAL ROUND
16 OCTOBER 2002

NOTE:

- Answer the questions according to the instructions on the answer sheet.
- You may use a calculator.
- The questions test insight. Complex calculations are therefore unnecessary and time consuming.
- We hope you enjoy it!

1. Today, 16 October 2002, falls on a Wednesday. On what day of the week will 16 October 2012 fall?

Monday
(A) Maandag
Mvulو

Tuesday
(B) Dinsdag
Lwesibini

Friday
(C) Vrydag
Lwesihlanu

Saturday
(D) Saterdag
Mgqibelo

Sunday
(E) Sondag
Cawa

2. What number is exactly halfway between 5,6 and 5,65?

(A) 5,025

(B) 5,625

(C) $5,62\frac{1}{2}$

(D) 5,605

(E) 5,655

3. Which one of these is *not* true?

(A) $(1 + 1) \div (1 + 1) = 1$

(B) $2 \div 2 + 2 \div 2 = 2$

(C) $3 \times 3 - 3 + 3 = 3$

(D) $(4 - 4) \div 4 + 4 = 4$

(E) $5 + 5 \times (5 - 5) = 5$



In cooperation with the
Western Cape Education Department
Gauteng Education Department

Wiskunde-uitdaging

GRAAD 6 FINALE RONDE
16 OKTOBER 2002

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!

1. Vandag, 16 Oktober 2002, val op 'n Woensdag. Op watter dag van die week sal 16 Oktober 2012 val?

Umceli-mnjeni Ngezibalo

GRADE 6 UMJIKELO WOKUGQIBELA
16 OKTHOBHA 2002

QAPHELA:

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

1. Namhlanje, ama 16 Oktobha 2002, aya kuba ngolwe Thathu. Uyakuba koluphi usuku lweveki umhla wama 16 Oktobha 2012?

Monday
(A) Maandag
Mvulو

Tuesday
(B) Dinsdag
Lwesibini

Friday
(C) Vrydag
Lwesihlanu

Saturday
(D) Saterdag
Mgqibelo

Sunday
(E) Sondag
Cawa

2. Leliphi elona nani liphakathi kanye kwesi 5,6 nesi 5,65?

(A) 5,025

(B) 5,625

(C) $5,62\frac{1}{2}$

(D) 5,605

(E) 5,655

3. Ingaba yeyiphi kwezi engeyonyani?

(A) $(1 + 1) \div (1 + 1) = 1$

(B) $2 \div 2 + 2 \div 2 = 2$

(C) $3 \times 3 - 3 + 3 = 3$

(D) $(4 - 4) \div 4 + 4 = 4$

(E) $5 + 5 \times (5 - 5) = 5$

Nasou Via Afrika



CASIO

RUMEUS

Research Unit for Mathematics Education
of the University of Stellenbosch

4. What is the number indicated by A on the ruler?

(A) 2,08

(B) 2,8

5. A lorry with a load of maize has a mass of 4 653 kg. The mass of the empty lorry is 2 583 kg. One bag of maize has a mass of 90 kg. How many bags of maize are on the lorry?

(A) 20

(B) 21

6. A side of the equilateral triangle A is three times the length of a side of equilateral triangle B. How many triangles B will fit into triangle A?

(A) 9

(B) 3

7. Which of the following divisions has the smallest remainder?

(A) $4002 \div 4$

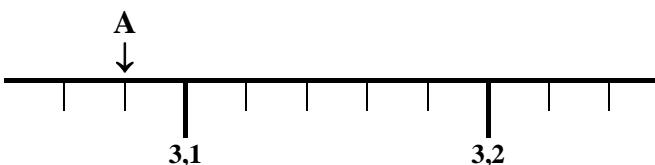
(B) $503 \div 5$

8. Which of the following is a fraction between $\frac{5}{6}$ and $\frac{7}{8}$?

(A) $\frac{4}{5}$

(B) $\frac{18}{22}$

4. Wat is die getal aangedui deur A op die liniaal?



(C) 3,0

(D) 3,08

(E) 3,09

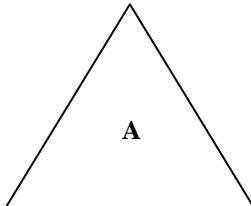
5. 'n Vragmotor met 'n vrag mielies het 'n massa van 4 653 kg. Die massa van die leë vragmotor is 2 583 kg en een sak mielies het 'n massa van 90 kg. Hoeveel sakke mielies is daar op die vragmotor?

(C) 22

(D) 23

(E) 24

6. 'n Sy van gelyksydige driehoek A is drie keer so lank as 'n sy van gelyksydige driehoek B. Hoeveel driehoekies B sal in driehoek A inpas?



(C) 6

(D) 10

(E) 12

7. Watter van die volgende deelprobleme het die kleinste res?

(C) $604 \div 6$

(D) $75 \div 7$

7. Ingaba yeypipi kwezi eneyona ntsalela incinci?

(E) $8883 \div 8$

8. Watter een van die volgende is 'n breuk tussen $\frac{5}{6}$ en $\frac{7}{8}$?

(C) $\frac{41}{48}$

(D) $\frac{8}{9}$

(E) $\frac{5}{7}$

4. Leliphi inani eliboniswa ngu A ?

8. Leliphi kula maqhezu eliphakathi ko $\frac{5}{6}$ kunye $\frac{7}{8}$?

9. A magic substance is placed in a container, where it doubles in quantity every minute. If the container is full after one hour, after how many minutes was it half-full?

(A) 30

(B) 59

10. A and B are two circles of the same size. If A is fixed and B is rolled around A, how many revolutions will B make before returning to its original position?

(A) $\frac{1}{2}$

(B) $1\frac{1}{2}$

11. Statistics show that, on average, a car is stolen somewhere in South Africa every 7 minutes. About how many cars are stolen in South Africa in a year?
Source: <http://www.saps.org.za/>

(A) 50 000

(B) 75 000

12. Karel spends half of his pocket money on computer games, he uses one eighth to buy sweets and saves one eighth. He has R15 left. How much pocket money did he have?

(A) R100

(B) R60

13. A book and a CD together cost R230. If the CD costs R60 more than the book, how much does the book cost?

(A) R80

(B) R115

9. 'n Towerstof word in 'n houer geplaas en verdubbel elke minuut in hoeveelheid. As die houer na een uur vol was, na hoeveel minute was die houer half-vol?

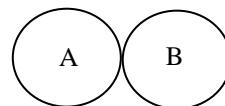
(C) 15

(D) 2

9. Umgubo othile wobugqi ofakwe kwisingxobo, uthi uziphinde kabini ngobukhulu rhoqo emva komzuzu. Ukuba esi singxobo sathi sazaliswa ngulo mgubo emva kweyure enye, kusemva kwemizuzu emingaphi apha lo mgubo uthewaba wasehafini yobukhulu besi singxobo?

(E) 0,5

10. A en B is twee ewe-groot sirkels. As A vas is en B word rondom A gerol, hoeveel omwentelings sal B maak voordat dit weer op die oorspronklike posisie is?



(C) 1

(D) 2

10. Imizobo u A kunye no B zizangqa ezinedayametha efanayo. Ukuba u A uye wacinezelwa waza u B waqengwa ejikeleziswa kwisangqa sika A, uya kuqengwa kangaphi ngokupheleleyo u B phambi kokuba abuyele kwindawo abe ekuyo ekuqaleni?

(E) $2\frac{1}{2}$

11. Statistiek toon dat daar gemiddeld elke 7 minute êrens in Suid-Afrika 'n motor gesteel word. Omrent hoeveel motors word per jaar in Suid-Afrika gesteel? Bron: <http://www.saps.org.za/>

(C) 7 000

(D) 2 500

11. Ubalo lwezinto lubonisa ukuba, ngokomyinge, kuthi kubiwe imoto ibe nye rhoqho emva kwemizuzu esi 7apha e Mzantsi Afrika. Zingaphi iimoto ezibiwayo ke ngoko apha eMzantsi Afrika ngonyaka? Icatshulwe kwi: <http://www.saps.org.za/>

(E) 153 000

12. Karel spandeer die helfte van sy sakgeld op rekenaarspeletjies, hy gebruik een agste om lekkers te koop en spaar 'n agste. Hy het R15 oor. Hoeveel sakgeld het hy gehad?

(C) R75

(D) R30

12. U Karel uchitha isiqingatha semali yakhe ngokudlala imidlalo ye computer, aphinde achithe isinye kwisibhozo ethenga ilekeseseaze esinye isinye ksisibhozo asigcine angasisebenzisi. Imali anayo eseleyo yi R15. Ingaba yimalini imali abe nayo ekuqaleni?

(E) R40

13. 'n Boek en 'n CD saam kos R230. As die CD R60 meer kos as die boek, hoeveel kos die boek?

(C) R110

(D) R170

13. Incwadi kunye ne CD zizombini zixabisa ama R230. Ukuba I CD ixabisa ama R60 ngaphezu kwencwadi, ingaba incwadi ixabisa malini?

(E) R85

14. Which of these fractions is the largest?

(A) $\frac{7}{15}$

(B) $\frac{8}{17}$

(C) $\frac{11}{23}$

(D) $\frac{13}{27}$

(E) $\frac{5}{11}$

15. In rugby a team can score as follows:

A try counts 5 points

A conversion after a try counts 2 points

A penalty or a drop goal counts 3 points.

So, a team cannot have a score of 1, 2 or 4 points.

Which of these scores is not possible in rugby?

(A) 43

(B) 78

(C) 56

(D) 47

All are possible
(E) Almal is moontlik
Oonke anako ukuphunyelewa

16. Jane eats twice as many sweets as Sue in half the time. Sue eats 12 sweets in 10 minutes. How many sweets does Jane eat in the same time?

(A) 60

(B) 12

(C) 48

(D) 24

(E) 60

17. Jackie interviewed fifty 6th graders 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) 0

(D) 4

(E) 9

14. Watter van hierdie breuke is die grootste?

(C) $\frac{11}{23}$

(D) $\frac{13}{27}$

14. Ingaba kula maqhezu leliphi elona likhulu?

(E) $\frac{5}{11}$

15. In rugby kan 'n span die volgende punte aanteken:

'n Drie tel 5 punte

'n Doelskop na 'n drie tel 2 punte

'n Strafskop of 'n skepskop tel 3 punte.

Dus kan 'n span nie 'n telling van 1, 2 of 4 punte hê nie.

Watter van die hierdie tellings is onmoontlik in rugby?

15. Kumdlalo wombhoxo iqela lingafumana amanqaku ngolu hlobo:

Ngokulala emgenci lifumana amanqaku ama 5.

Ngokufaka ibhola ezimpondweni emva kokulala emgenci lifumana amanqaku ama 2.

Ngokufaka ibhola ezimpondweni emva kwesohlwayo okanye uyifake ngokuyikhaba xa ubona ithuba lifanele lifumana amanqaku ama 3.

Ke ngoko iqela alikwazi ukufumana inqaku eli 1, okanye ama 2, okanye ama 4.

Leliphi kula manqaku elingasoze libe linqaku elinokuphunyelewa kumdlalo wombhoxo?

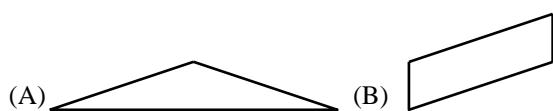
16. Jane eet twee keer soveel lekkers as Sue in helfte van die tyd. Sue eet 12 lekkers in 10 minute. Hoeveel lekkers eet Jane in dieselfde tyd?

16. Kwisiqingatha sethuba uJane unokutya iilekese ezimbini ezinokutya ngu Sue. U Sue uthi atye iilekese ezili 12 kwisithuba esingange 10 lemizuzu. Zingaphi iilekese ezinokutya ngu Jane ngemizuzu elishumi?

17. Jackie het vyftig graad 6-leerders ondervra oor hul TV voorkeure. 41 sê hulle hou van komedies, 35 sê hulle geniet aksieflikeks en 30 sê hulle hou van beide. Hoeveel van die leerders hou nie van een van die twee nie?

17. U Jackie wathi wenza udliwano ndlebe nabafundi bebanga lesithandathu abangashumi amahlanu ebabuza ngenkubo zikamabonakude abazithandayo. Abangama 41 bathi bathanda inkubo ezhlekisayo, abangama 35 bathi bonwatyiwa zinkubo apho kuliwayo kuzo baze abangama 30 bona bathi bazithanda zombini ezindidi zenkubo. Bangaphi abafundi ekungekho nenye kwezindidi zenkubo abayithandayo?

18. The given figure is cut along the dotted line and the two pieces are rearranged. Which of the following shapes cannot be formed?



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

19. An elephant, an adult man, a tiger, a horse and a cat are represented on the mass-speed graph shown here. Which point represents the man?



(A) A

(B) B

(C) C

(D) D

(E) E

20. You want to enlarge the rectangle in the figure so that the side PS is 6 cm long. How long will side PQ be in the enlargement?

(A) 7 cm

(B) 8 cm

(C) 9 cm

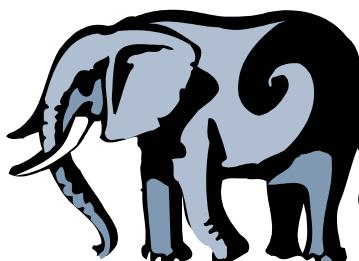
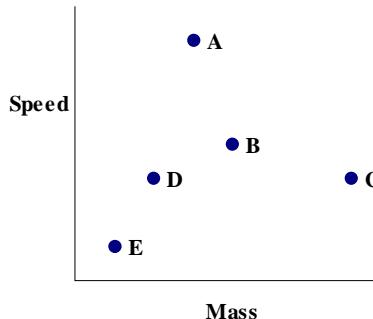
(D) 10 cm

(E) 12 cm

18. Gestel die gegewe figuur word langs die stipellyn geknip en die twee stukke word anders gerangskik. Watter van die figure kan nie gevorm word nie?



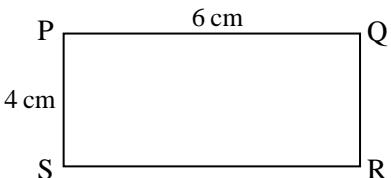
19. 'n Olifant, 'n volwasse man, 'n tier, 'n perd en 'n kat word op hierdie spoed-massa grafiek voorgestel. Watter punt stel die man voor?



18. Cingela ukuba lomzobo unikiwego usikwe kulumgca uboniswego. Ukuba lamasuntswana mabini athe ahlengahlengiswa, ngowuphi kule mizobo ongenakwenzeka ?

19. Indlovu, indoda eseyikhulile, ihlosi, ihashe kunye nekati ziboniswe kule grafu yobunzima nesantya. Leliphi ichapaza elibonisa indoda?

20. Jy wil die reghoek in die figuur vergroot sodat die sy PS 6 cm lank is. Hoe lank sal die sy PQ in die vergroting wees?



20. Ufuna ukwenza uxande olukumzobo lubelikhulu ngokwenza icala PS lube nobude obusi 6. Icalu PQ liyakuba nobude obungakanani kolu tshintsho?

21. A palindrome is a whole number that reads the same forwards or backwards (e.g. 4774). How many palindromes are there between 10 and 500?

(A) 40

(B) 49

(C) 45

(D) 36

22. This big triangle below has four rows. There is one small triangle in the first row, three in the second row and five in the third row. If such a triangle has 50 rows, how many small triangles are there in the 50th row?

(A) 99

(B) 101

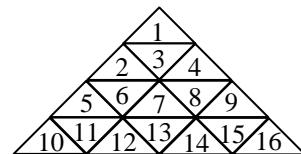
(C) 51

(D) 151

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

21. 'n Palindroom is 'n getal wat dieselfde lees van links en van regs (bv. 4774). Hoeveel palindrome is daar tussen 10 en 500?

21. I Palindrome linani elizeleyo elifundeka ngokufanayo xa uliqala ngaphambili naxa uluqala ngasemva (umzekelo 4774). Zingaphi ii palindrome ezikhoyo phakathi kwe 10 nama 500?



(E) 150

23. Refer to question 22. In such a big triangle with 50 rows, how many small triangles are there altogether?

(A) 2450

(B) 2500

(C) 99

(D) 2000

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

24. Refer to question 22. The last number in the fourth row is 16. If the pattern is continued, what will the last number in the 15th row be?

(A) 100

(B) 190

(C) 202

(D) 225

23. Sebenzisa umzobo okunamba 22. Kumzobo ongentla kunxantathu omkhulu onemiqolo angamashumi amahlanu. Bangaphi onxantathu abancinane abakhoyo?

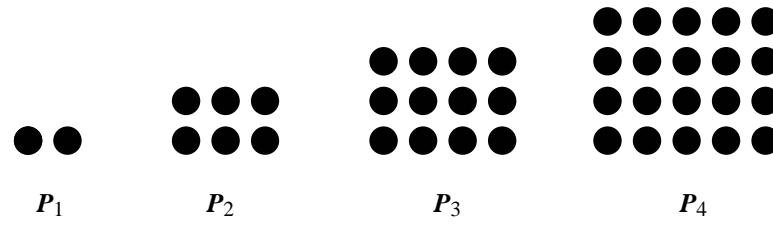
24. Sebenzisa umzobo okunamba 22. Inani lokuggibela kumqolo wesine ngu-16. Ingaba lakuba ngubani kumqolo 15?

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

25. Bruce uses dots to build patterns as shown below.
How many dots will he use for P_{50} ?

25. Bruce bou patronne met kolletjies soos hieronder.
Hoeveel kolletjies sal hy gebruik vir P_{50} ?

25. U Bruce usebenzisa amachokoza ukwakha lo
mfanekiso ubonisewyo ngezantsi. Mangaphi
amachokoza amakawasebenzise kumzobo P_{50} ?



(A) 2601

(B) 1275

(C) 2550

(D) 2500

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