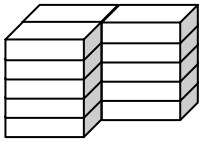
# Mathematics Challenge

**GRADE 5 FIRST ROUND**
**SEPTEMBER 2003**

**NOTE:**

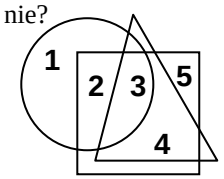
- Answer the questions according to the instructions on the answer sheet.
- You may use a calculator.
- The questions test insight. Complex calculations will therefore not be necessary.
- We hope you enjoy it!

1. How many blocks did Tacia use to build this shape?



(A) 11 (B) 13 (C) 10 (D) 15 (E) 20

2. Which number is in the square and the circle but is not in the triangle?




(A) 1 (B) 2 (C) 3 (D) 4 (E) 5

# Wiskunde-uitdaging

**GRAAD 5 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 berekeninge is dus onnodig en tydrowend.
- Ons hoop jy geniet dit!

1. Hoeveel blokkies het Tacia gebruik om hierdie vorm te bou?

2. Watter getal is in die vierkant en die sirkel, maar nie in die driehoek nie?

# Umceli-mngeni Ngezibalo

**GRADE 5 UMJIKELO WOKUQALA**
**SEPTEMBA 2003**

**QAPHELA:**

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

1. Zingaphi iibhokisi ezisetyenziswe ngu-Tacia ukwakha esi sakhiwo?

2. Leliphi inani elikwisikwere nakwi sangqa kodwa lingekho kunxantathu?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The Association for Mathematics Education of South Africa

In cooperation with the
Western Cape Education Department
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3. Bulelwa buys 6 bars of soap for R4,15 each and 2 facecloths for R12,49 each. She pays with a R100 note. What change will she get?

(A) R52,88 (B) R51,22 (C) R50,12 (D) R49,12 (E) R49,88

3. Bulelwa koop 6 koekies seep teen R4,15 elk en 2 waslappe teen R12,49 elk. Sy betaal met ’n R100-noot. Wat sal haar kleingeld wees?

3. U Bulelwa uthenga izitena zesepha ezisi 6 ngee R4,15 sisinye ne 2 samalaphu okuhlamba ubuso ngee R12,49 lilinye. Uhlawule ngemali eliphepha elili R100. Yimalini itshintshi yakhe?

4. What is the only whole number between one and ten which does not divide exactly into 360?

(A) 4 (B) 6 (C) 7 (D) 8 (E) 9

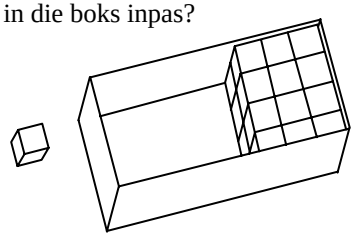
4. Wat is die enigste heelgetal tussen een en tien wat nie presies in 360 indeel nie?

4. Leliphi elona nani lizeleyo eliphakathi kwesinye neshumi ama 360 angohluleki gingci ngalo?

5. 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 blocks can be packed into the box?

(A) 32 (B) 14 (C) 24 (D) 64 (E) 48

5. 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?



5. 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 gingci lebhokisi?

6. In question 5: After all the blocks are packed into the box, how many blocks will be touching the box?

(A) 64 (B) 32 (C) 40 (D) 52 (E) 56

6. In vraag 5: Nadat all die blokkies ingepas is, hoeveel blokkies sal aan die boks raak?

6. Kumbuzo 5: Xa iibhokisana ezincinci zithe zafakwa kule bhokisi, zingaphi ezizakuthi zoyame emacaleni nakumgangatho wale bhokisi?

7. Thomas forgot to take off his shoes when he got onto the scale to weigh himself. The scale showed 41 kg. He then weighed his two shoes and found that they had a mass of 725 g. What was his mass without his shoes?

(A) 40,175 g (B) 40,725 kg (C) 39,275 kg (D) 41,725 kg (E) 40,275 kg

7. Thomas het vergeet om sy skoene uit te trek voor hy op die skaal geklim het om homself te weeg. Die skaal het 41 kg gewys. Toe weeg hy sy twee skoene en vind dat hulle ’n massa van 725 g het. Wat was sy massa sonder sy skoene?

7. U Thomas walibala ukuzikhulula izihlangu zakhe xa wathi wakhwela kwisikali sokulinganisa ubunzima bakhe. Isikali sathi sabonisa ama 41 kg. Wathi wakugqiba walinganisa izihlangu zakhe zozibini wafumanisa ukuba zinobunzima obungama 725 g. Babungakanani ubunzima bakhe xa wathi wazikhulula izihlangu?

8. How many whole numbers from 1 to 100 do not have a 9 in them?

(A) 90 (B) 91 (C) 80 (D) 81 (E) 82

8. Hoeveel heelgetalle vanaf 1 tot 100 bevat nie ’n 9 nie?

8. Mangaphi amanani aphakathi kwesi 1 ne 100 angenaso isi 9 kwidijithi zawo?

9. What is the next number in this pattern?

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

(A) 0,85 (B) 0,35

9. Wat is die volgende getal in hierdie getalpatroon?

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

(C) 1,35 (D) 0,9

9. Leliphi inani elilandela lamanani kolu luhlu lwamani?

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

(E) 0,535

10. Some numbers read the same forwards and backwards, like 353 and 262. How many such "mirror numbers" are there between 100 and 200?

(A) 7 (B) 8

10. Sommige getalle lees dieselfde van voor en van agter, soos 353 en 262. Hoeveel sulke "spieëlgetalle" is daar tussen 100 en 200?

(C) 9 (D) 10

10. Amanye amanani afundeka ngendlela efanayo xa uwafunda uqalela ngaphambili naxa uwafunda uqalela ngemva, njengama 353 nama 262. Mangaphi "amanani azizipili" anjalo afumaneka phakathi kwe 100 nama 200?

(E) 11

11. It is now the month of September. What month will it be 100 calendar months from now?

(A) September / September / Septemba
(B) October / Oktober / Okthoba

11. Dit is nou die maand September. Watter maand sal dit 100 kalendermaande van nou af wees?

(C) November / November / Novemba
(D) December / Desember / Disemba

11. Kuyinyanga ka Septemba ngoku. Iya kuba iyeyiphi inyanga ukusukela ngoku xa kudlule iinyanga ezili 100?

(E) January / Januarie / Janyuwari

12. If today is Wednesday, what day of the week will it be 100 days from now?

(A) Wednesday / Woensdag / Lwesithathu
(B) Thursday / Donderdag / Lwesine

12. As dit vandag Woensdag is, watter dag van die week sal dit 100 dae van nou af wees?

(C) Friday / Vrydag / Lwesihlanu
(D) Saturday / Saterdag / Mgqibelo

12. Ukuba namhlanje kungoLwesithathu, Iyakuba iloluphi usuku lweveki xa kudlule iintsuku ezili 100 ukusukela ngoku?

(E) Sunday / Sondag / Cawe

13. If my watch now shows 10:00, what will the time be 100 hours from now?

(A) 10:00 (B) 11:00

13. As my horlosie nou 10:00 wys, hoe laat sal dit wees 100 ure van nou af?

(C) 12:00 (D) 13:00

13. Ukuba iwotshi yam ibonisa ukuba yintsimbi ye 10:00, liyakuba lingubani ixesha emva kwee yure ezili 100 ukusukela ngoku?

(E) 14:00

14. If the date today is 10 September, what will the date be 100 days from now?

(A) 17 December / 17 Desember / 17 Disemba
(B) 18 December / 18 Desember / 18 Disemba

14. As dit vandag 10 September is, wat sal die datum wees 100 dae van nou af?

(C) 19 December / 19 Desember / 19 Disemba
(D) 20 December / 20 Desember / 20 Disemba

14. Ukuba ngumhla wesi 9 ku Septemba namhlanje,iyakuba ingumhla wesingaphi emva kweentsuku ezili 100 ukusukela namhlanje?

(E) 21 December / 21 Desember / 21 Disemba

15. A class was divided into 2 teams for a charity collection (The *red* team and the *blue* team). The red team collected 3c for every 5c that the blue team collected. If the blue team collected R90, how much did the red team collect?

(A) R120 (B) R60

15. ’n Klas word in twee spanne verdeel vir ’n fondsinsameling (Die *rooi* span en die *blou* span). Die rooi span het 3c ingesamel vir elke 5c wat die blou span ingesamel het. As die blou span R90 ingesamel het, hoeveel het die rooi span ingesamel?

(C) R150 (D) R54

15. Iklasi yathi yohlulwahlulwa yaba ngamaqela amabini okuba aqokelele ingxowa-mali yembedlenge (Athi abizwa ngokuba liqela bomvu neqela luhlaza). Iqela bomvu laqokelela isi 3c kwisi 5c ngasinye esaqokelelwe liqela luhlaza. Ukuba iqela luhlaza laqokelela ama R90, ingaba iqela bomvu laqokelela malini lona?

(E) R18

16. The points A, B, C, D, and E are located on a straight line, in that order.
The distance from A to E is 20 cm
The distance from A to D is 15 cm
The distance from B to E is 10 cm

What is the distance from A to B?

(A) 10 cm (B) 5 cm

16. Die punte A, B, C, D en E lê op ’n reguit lyn, in daardie volgorde.
Die afstand tussen A en E is 20 cm
Die afstand tussen A en D is 15 cm
Die afstand tussen B en E is 10 cm

Wat is die afstand tussen A en B?

(C) 2,5 cm (D) 15 cm

16. Amachokoza u A, B, C, D, kunye noE ahleliswe ngokulandelelana emgceni omnye.
Umgama osukela ku A ukuya ku E ungama 20 cm
Umgama osukule ku A ukuya ku D uli 15 cm
Umgama osukela ku B ukuya ku E uli 10 cm

Ingaba umgama osukela ku A ukuya ku B ungakanani?

(E) Not enough information
Nie genoeg inligting nie
Akukho nkcazelo yaneleyo

17. A computer uses a secret rule so that for every *input number* that you type in, it produces an *output number* using that same rule. Here are some examples of the computer’s answers:

| *Input number* | 0 | 1 | 2 | 3 |
|---|---|---|---|---|
| *Output number* | 2 | 7 | 12 | 17 |

What is the computer’s rule?
(A) Output number = Input number + 6
(B) Output number = Input number × 6
(C) Output number = Input number × 5 + 2
(D) Output number = Input number + 2 × 5
(E) None of these

17. ’n Rekenaar gebruik ’n geheime formule – vir elke *invoergetal* wat jy intik, gebruik die rekenaar dieselfde formule om ’n *uitvoergetal* te bereken. Hier is ’n paar voorbeelde van die rekenaar se antwoorde:

| *Invoergetalle* | 0 | 1 | 2 | 3 |
|---|---|---|---|---|
| *Uitvoergetalle* | 2 | 7 | 12 | 17 |

Wat is die rekenaar se formule?
(A) Uitvoergetal = Invoergetal + 6
(B) Uitvoergetal= Invoergetal × 6
(C) Uitvoergetal= Invoergetal × 5 + 2
(D) Uitvoergetal= Invoergetal + 2 × 5
(E) None of these

17. I computer yenziwe ukuba isebenzise umgaqo oyimfihlo ukuze ukwazi ukuthi xa ucofe inani (*input*), ibonise elinye inani (*output*) ikwasebenxisa kwalo mgaqo:

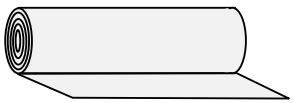
| *Input number* | 0 | 1 | 2 | 3 |
|---|---|---|---|---|
| *Output number* | 2 | 7 | 12 | 7 |

Uthini lo mgaqo we computer?
(A) Output number = Input number + 6
(B) Output number = Input number × 6
(C) Output number = Input number × 5 + 2
(D) Output number = Input number + 2 × 5
(E) Ayiko kwezi

18. 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

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



(C) 110 m (D) 108 m

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

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

19. 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 learner from the left end of the row and the fifth learner from the right. How many learners are in the class?

(A) 48 (B) 35 (C) 30 (D) 24

19. 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?

19. 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 ukususka ngaphambili nowesine ukususka ngasemva. Ukwangumfundi wesithathu ukususka kwisiphelo sasekhohlo somgca abe ngowesihlanu ukususka ekunene. Bangaphi abafundi abakwigumbi elo?

(E) Not enough information / Nie genoeg inligting nie / Akukho nkcazelo yaneleyo

20. A rectangular card is white on the one side and grey on the other side. If a corner is cut off, the grey side will look like the picture below. Which one is a possible picture of the white side?

(A)  (B) 

20. ’n Reghoekige kaart is wit aan die een kant en grys aan die ander kant. As ’n hoek afgesny word, sal die grys kant soos die prentjie hieronder lyk. Hoe sal die wit kant lyk?

(C)  (D) 

20. Ikhasi eliluxande limhlophe kwelinye icala lize libe mnyama kwelinye icala. Ukuba ikona ithe yasikwa, icala elimnyama liyakubonakala njengakulomfanekiso ubonisiweyo. Ngowuphi kule mifanekso ongowona unokuba ngumfanekiso wecala elimhlophe?

(E) 

21. In the magic square below the sum of the three numbers in each row, in each column and in each diagonal is 18. What number is in block Z?

(A) 1 (B) 3 (C) 4 (D) 7

21. In die towervierkant hieronder is die som van die drie getalle in elke ry, in elke kolom en in elke skuinslyn gelyk aan 18. Watter getal is in blokkie Z?

| | | |
|---|---|---|
| | | **Z** |
| 8 | 6 | |
| | | 5 |

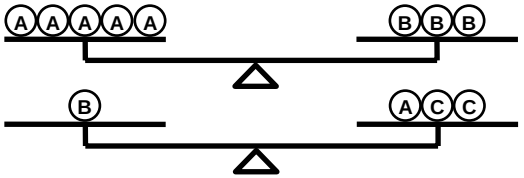
21. Kwesi sikwere sobugqi singezantsi isiphumo sokudityaniswa kwamanani amathathu asemgceni ngamnye, nakuluhlu ngalunye kunye nasemgceni oxwesileyo (diagonal) ngamnye siba li 18. Ngubani inani elizakuhlala kwibloko u Z?

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

22. How many ‘C’ balls does it take to balance one ‘A’ ball?

(A) 3 (B) 1

22. Hoeveel ‘C’-balle is nodig om een ‘A’-bal te balanseer?




(C) 2 (D) 5

22. Ngokwakulo mzobo ziingaphi iibholo ezichazwe ‘C’ ezinoba nomlinganiselo ofanayo nowebhola enye echazwe ‘A’?

(E) 4

23. Here is a subtraction problem, but the problem is missing:

$$\begin{array}{r} ?? \\ -\,\underline{??} \\ 75 \end{array}$$

How many different two-digit subtraction problems could have the answer 75?

(A) 15 (B) 8

23. Hier is ’n aftrek-probleem, maar die probleem is uitgelaat:

$$\begin{array}{r} ?? \\ -\,\underline{??} \\ 75 \end{array}$$

Hoeveel verskillende twee-syfer aftrek-probleme kan die antwoord 75 hê?

(C) 12 (D) 25

23. Nasi isibalo sokuthabatha, kodwa amanani aso akabonakali:

$$\begin{array}{r} ?? \\ -\,\underline{??} \\ 75 \end{array}$$

Zingaphi izibalo zokuthabatha ezisebenzisa amanani ane dijithi ezimbini ezinokuba nesiphumo sama 75?

(E) 24

24. 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

24. By *Pizza Inn* kos 2 klein pizzas en een groot pizza net soveel soos 5 klein pizzas. As ’n klein pizza R11,50 kos, wat kos ’n groot pizza?

(C) R27,50 (D) R34,50

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

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

25. Linda and Thandi went to buy some snacks. The table shows what they bought and how much it cost. How much did one chocolate cost?

25. Linda en Thandi het lekkergoed gaan koop. Die tabel toon wat hulle gekoop het en hoeveel dit gekos het. Hoeveel het een sjokolade gekos?

25. U Linda kunye no u Thandi kunye bayokuthenga izmuncumuncu. Izinto abazithengayo kunye namaxabiso azo abonisiwe kule tafile yamanani, Ingaba itshokoleti enye ixabisa malini?

| | Chocolate | Gum | Juice | Total cost |
|---|---|---|---|---|
| **Linda** | 0 | 2 | 2 | R10 |
| **Thandi** | 1 | 1 | 1 | R9 |

(A) R4 (B) R6 (C) R2 (D) R1 (E) R3