

Mathematics Challenge

GRADE 5 FINAL ROUND

12 OCTOBER 2005

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!

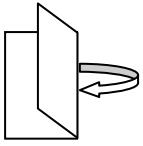
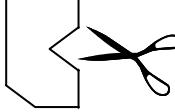
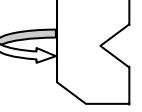
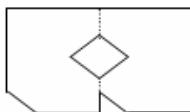
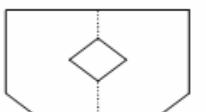
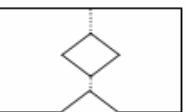
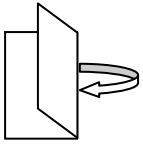
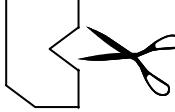
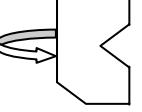
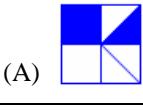
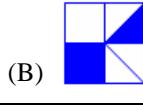
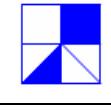
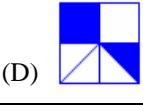
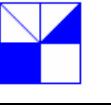
Wiskunde-uitdaging

GRAAD 5 FINALE RONDE

12 OKTOBER 2005

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. A rectangular bathroom wall measures 3 m by 2 m. It is covered with square tiles measuring 20 cm by 20 cm. How many tiles are there altogether?
- (A) 300 (B) 30 (C) 150 (D) 200 (E) 400
2. A farmer makes a fence around his square garden. When it is completed there are 10 poles on each side. How many poles did he use altogether?
- (A) 40 (B) 38 (C) 36 (D) 34 (E) 20
3. Yusuf folded a piece of paper in half, and then made cuts in the paper as shown here:
- 
- 
- 
- What will it look like if he now unfolds the paper?
- (A)  (B)  (C)  (D)  (E) 
3. Yusuf het 'n stuk papier in die helfte gevou en die papier geknip soos hier gewys:
- 
- 
- 
- Hoe sal dit lyk as hy nou die papier oopvou?
4. Which square is the same as the one below?
- (A)  (B)  (C)  (D)  (E) 
4. Watter vierkant is dieselfde as die een hieronder?
- (A)  (B)  (C)  (D)  (E) 
5. In a string of beads there are 2 red beads for every 5 green beads and 3 purple beads for every 10 green beads. How many purple beads are there in a string with 12 red beads?
- (A) 50 (B) 10 (C) 9 (D) 15 (E) 18
-



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

6. 1st row: •
 2nd row: • • •
 3rd row: • • • • •
 4th row: • • • • • • •

How many dots would be in the 7th row?

(A) 7

(B) 10

(C) 11

6. 1ste ry: •
 2de ry: • • •
 3de ry: • • • • •
 4de ry: • • • • • • •

Hoeveel kolletjies sal daar in die 7de ry wees?

(D) 13

(E) 15

7. In question 6, how many dots would be in the 70th row?

(A) 137

(B) 139

(C) 140

7. In vraag 6, hoeveel kolletjies sal daar in die 70ste ry wees?

(D) 141

(E) 130

8. In question 6, how many dots are there in total in 70 rows, i.e. $1 + 3 + 5 + \dots$?

(A) 4900

(B) 1390

(C) 4970

8. In vraag 6, hoeveel kolletjies sal daar altesaam in 70 rye wees, d.w.s. $1 + 3 + 5 + \dots$?

(D) 490

(E) 2450

9. Sara buys a tree when it is 12 cm high. Every day, she writes down its height in the table below. If the tree continues to grow the same amount every day, how high will it be after 30 days?

Days/Dae	0	1	2	3
Height/Hoogte (cm)	12	13,5	15	16,5

(A) 165 cm

(B) 57 cm

(C) 36 cm

(D) 150 cm

(E) 155 cm

9. Sara koop 'n boom as dit 12 cm hoog is. Sy skryf elke dag die boom se hoogte in die tabel hieronder neer. As die boom aanhou om elke dag dieselfde hoeveelheid te groei, hoe hoog sal dit na 30 dae wees?

10. In question 9: After how many days was the tree 1,5 m high?

(A) 100

(B) 95

(C) 93

10. In vraag 9: Na hoeveel dae was die boom 1,5 m hoog?

(D) 92

(E) 105

11. Which one of the following numbers will appear in this pattern:

7; 13; 19; 25; ... ?

(A) 2 734

(B) 3 526

(C) 3129

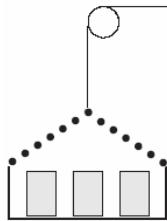
11. Watter een van die volgende getalle sal voorkom in hierdie ry:

7; 13; 19; 25; ... ?

(D) 4 183

(E) 5 345

12. On the scale below, three sacks balance one sack and 30 kg. If each sack weighs the same, what do the three sacks weigh?

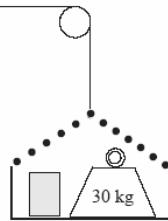


(A) 15 kg

(B) 60 kg

(C) 90 kg

12. Op die skaal hieronder word drie sakke gebalanseer deur een sak en 30 kg. As elke sak dieselfde weeg, wat weeg die drie sakke saam?



(D) 30 kg

(E) 45 kg

13. 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

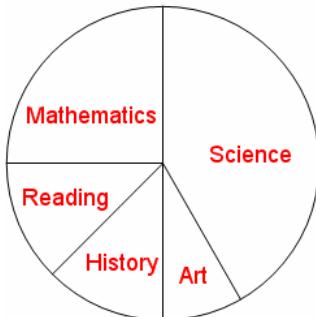
13. Die skets toon die eerste drie patrone in die ry wat John met munstukke uitpak. Hoeveel munstukke het hy nodig vir die vyftigste patroon in die ry?



(D) 155

(E) 160

14. The pie chart below shows the portion of time Zin spent on homework in each subject last week. If he spent 2 hours on mathematics, about how many hours did he spend on homework altogether?



- (A) 4 (B) 8 (C) 12 (D) 15 (E) 16

14. Die sirkeldiagram hieronder toon die gedeelte tyd wat Zin verlede week aan huiswerk vir elke vak bestee het. As hy 2 uur wiskunde gedoen het, omtrent hoeveel uur het hy altesaam aan huiswerk bestee?



15. You want to use Maggie's recipe below to bake some milktarts. How many cups of milk do you need to bake 8 milktarts?

MAGGIE'S MILKTART
(Makes 6 milktarts)

8 cups of milk
4 cups of sugar
2 $\frac{1}{2}$ cups of flour
3 tablespoons butter
9 eggs
 $\frac{1}{4}$ teaspoon salt

- (A) $8\frac{1}{3}$ (B) $10\frac{2}{3}$ (C) $10\frac{1}{3}$ (D) $10\frac{1}{2}$ (E) 10

15. Jy wil melktart bak met Maggie se resep hieronder. Hoeveel koppies melk het jy nodig om 8 melktarte te bak?

MAGGIE SE MELKTERT
(Maak 6 melkterte)

8 koppies melk
4 koppies suiker
2 $\frac{1}{2}$ koppies meel
3 lepels botter
9 eiers
 $\frac{1}{4}$ teelepel sout

16. In question 15: If you only have 15 eggs (and enough of all the other ingredients), how many milktarts can you bake using Maggie's recipe?

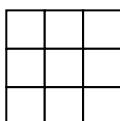
- (A) 8 (B) 9 (C) 10 (D) 11 (E) 12

16. In vraag 15: As jy net 15 eiers het (maar genoeg van die ander bestanddele), hoeveel melkterte kan jy bak met Maggie se resep?

17. The numbers from 1 to 9 must be written in the grid below according to the following rules:

Only one number per block
1, 8 and 6 are in the top row
8, 3, 5, 1, 9 and 4 are not in the right column
9, 4 and 2 are in the bottom row
6, 4, 3, 1, 7, and 2 are not in the left column

What number will be in the centre of the grid?

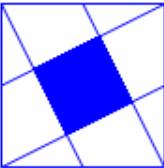


- (A) 5 (B) 3 (C) 7 (D) 2 (E) You cannot know
Mens kan nie sê nie

17. Die getalle van 1 tot 9 moet in die rooster hieronder ingevul word volgens die volgende reëls:

Slegs een getal in elke blokkie
1, 8 en 6 is in die boonste ry
8, 3, 5, 1, 9 en 4 is nie in die regterkantste kolom nie
9, 4 en 2 is in die onderste ry
6, 4, 3, 1, 7, en 2 is nie in die linkerkantste kolom nie

Watter getal kom in die middelste blok van die rooster?

18. The corners of a square are connected to the midpoints of the opposite sides. What fraction of the big square is shaded?
- (A) $\frac{1}{2}$ (B) $\frac{1}{3}$ (C) $\frac{1}{4}$ (D) $\frac{1}{5}$ (E) $\frac{1}{9}$
- 
18. Die hoekpunte van 'n vierkant word verbind met die middelpunte van die teenoorstaande sye. Watter breuk van die groot vierkant is verdonker?
19. Every week Thembo saves R1,50 of his pocket money, while Sipho is able to save $1\frac{1}{2}$ times that amount. How much more would Sipho have saved than Thembo after 12 weeks?
- (A) R9,00 (B) R18,00 (C) R27,00 (D) R16,00 (E) R10,00
20. Lulu's bucket weighs 21 kg when full of water. After she pours out half the water from the bucket, it weighs 12 kg. What is the weight of the empty bucket?
- (A) 2 kg (B) 3 kg (C) 9 kg (D) 18 kg (E) 4 kg
21. Mother baked some cookies for a children's party. She gave each child 6 cookies and she had 7 cookies left. So she gave one more cookie to each child, but was one cookie short. How many cookies did she bake?
- (A) 41 (B) 46 (C) 47 (D) 56 (E) 55
22. 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
23. Penny has twice as many coins as Alex. If Penny gives Alex four coins, they have the same number of coins. How many coins do they have in the beginning?
- (A) 8 (B) 12 (C) 16 (D) 18 (E) 24
24. How many four-digit numbers are there in which the sum of the digits is 4?
- (A) 17 (B) 16 (C) 18 (D) 19 (E) 20
25. At *Pizza Inn* two small pizzas and one large pizza costs the same as five 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) R21,50
19. Thembo spaar elke week R1,50 van sy sakgeld, terwyl Sipho $1\frac{1}{2}$ keer soveel spaar. Hoeveel meer sal Sipho as Thembo gespaar hê na 12 weke?
20. Lulu se emmer weeg 21 kg wanneer dit vol water is. Nadat sy die helfte van die water uitgegooi het, weeg dit 12 kg. Wat weeg die leë emmer?
21. Moeder het koekies vir 'n kinderpartyjie gebak. Sy het aan elke kind 6 koekies gegee en het toe 7 koekies oorgehad. Sy gee toe aan elke kind nog 'n koekie, maar het een koekie te min gehad. Hoeveel koekies het sy gebak?
22. Om appelkoosjogurt te maak is 5 dele jogurt nodig vir 1 deel appelkose. Hoeveel liter jogurt is nodig om 30 liter appelkoosjogurt te maak?
23. Penny het tweekeer soveel munstukke as Alex. As Penny vir Alex vier munstukke gee, het hulle ewe veel munstukke. Hoeveel munstukke het hulle in die begin saam gehad?
24. Hoeveel viersyfer-getalle is daar sodat die som van die syfers 4 is?
25. By *Pizza Inn* kos twee klein pizzas en een groot pizza net soveel soos vyf klein pizzas. As 'n klein pizza R11,50 kos, wat kos 'n groot pizza?