SA Mathematics Challenge 2013
GRADE 5 FINAL ROUND
4 SEPTEMBER 2013

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!

SA Wiskunde-uitdaging 2013
GRAAD 5 FINALE RONDE
4 SEPTEMBER 2013

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!

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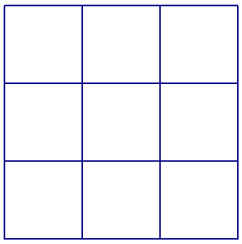
1. How many squares of all sizes are there in this figure?



(A) 14 (B) 13 (C) 10 (D) 9 (E) 12

1. Hoeveel vierkante van alle groottes is daar in hierdie figuur?

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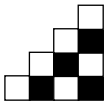
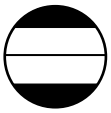
2. In which one of the following is half of the figure shaded?

(A)  (B)  (C) 

2. In watter een van die volgende is die helfte van die figuur verdonker?

(D)  (E) 

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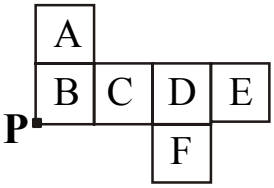
3. The net below must be folded to form a cube. Which three faces will meet at P?



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

3. Die net hieronder moet gevou word om 'n kubus te vorm. Watter drie sykante sal by P ontmoet?

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4. A train departs from Bellville station at 09:57 and arrives in Cape Town at 10:28. Another train on the same route leaves Bellville at 12:40. At what time does it arrive in Cape Town?

(A) 13:28 (B) 13:11 (C) 01:11 (D) 13:22 (E) 12:51

4. 'n Trein vertrek om 09:57 van Bellville-stasie en kom om 10:28 in Kaapstad aan. 'n Ander trein op dieselfde roete vertrek om 12:40 van Bellville. Hoe laat kom dit in Kaapstad aan?

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5. If you begin with a certain one-digit number, multiply it by 3, then add 8, then divide by 2 and then subtract 6, you will get the original number as answer. What is the number?

(A) 2 (B) 8 (C) 6 (D) 5 (E) 4

5. As jy begin met 'n sekere eensyfer-getal, dit vermenigvuldig met 3, dan 8 bytel, dan deel deur 2 en dan 6 aftrek, sal jy die oorspronklike getal as antwoord kry. Wat is die getal?

6. Sipho has 12 more marbles than Landi. If Sipho has 32 marbles, how many marbles do they have altogether?

(A) 44 (B) 52 (C) 20 (D) 40 (E) 64

6. Sipho het 12 meer albasters as Landi. As Sipho 32 albasters het, hoeveel albasters het hulle saam?

7. Calculate:
$2-1+3-2+4-3+5-4+6-5+\ldots+101-100$

(A) 99 (B) 100 (C) 101 (D) 102 (E) 201

7. Bereken:
$2-1+3-2+4-3+5-4+6-5+\ldots+101-100$

8. $\frac{2}{5}$ of the learners in a class are girls. There are 12 girls in the class. How many learners are there in the class?

(A) 30 (B) 24 (C) 60 (D) 36 (E) 20

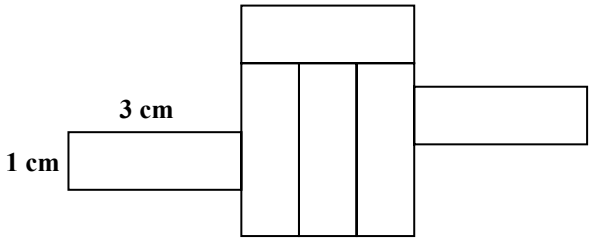
8. $\frac{2}{5}$ van die leerders in 'n klas is meisies. Daar is 12 meisies in die klas. Hoeveel leerders is daar in die klas?

9. Five friends ordered 3 cakes of the same size. James ate $\frac{3}{4}$ of a cake, Katya ate $\frac{1}{4}$ of a cake, Ramon ate $\frac{3}{4}$ of a cake, and Sarie ate $\frac{1}{2}$ of a cake. How much cake is left for Oscar?

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

9. Vyf vriende bestel 3 ewe groot koeke. James eet $\frac{3}{4}$ van 'n koek, Katya eet $\frac{1}{4}$ van 'n koek, Ramon eet $\frac{3}{4}$ van 'n koek, en Sarie eet $\frac{1}{2}$ van 'n koek. Hoeveel koek is daar oor vir Oscar?

10. Rectangles with sides 3 cm and 1 cm are used to make the figure below. How far is it once around the figure?



(A) 24 cm (B) 48 cm (C) 26 cm (D) 14 cm (E) 32 cm

10. Reghoeke met sye 3 cm en 1 cm word gebruik om die onderstaande figuur te vorm. Hoe ver is dit een keer rondom die figuur?

11. 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

11. 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?

12. A factory manufactures dresses and shirts:
3 dresses are manufactured for every 4 shirts. In a week the factory produced a total of 420 dresses and shirts. How many of these were dresses?

(A) 180 (B) 240 (C) 140 (D) 315 (E) 120

12. 'n Fabriek vervaardig rokke en hemde: vir elke 3 rokke word 4 hemde vervaardig. Gedurende 'n week word altesaam 420 rokke en hemde vervaardig. Hoeveel hiervan is rokke?

13. Jack, Kim and Len have 220 stamps altogether. Jack has twice as many stamps as Kim. Len has 40 stamps. How many stamps does Kim have?

(A) 30 (B) 80 (C) 90 (D) 60 (E) 63

13. Jack, Kim en Len het saam 220 seëls. Jack het twee keer soveel seëls as Kim. Len het 40 seëls. Hoeveel seëls het Kim?

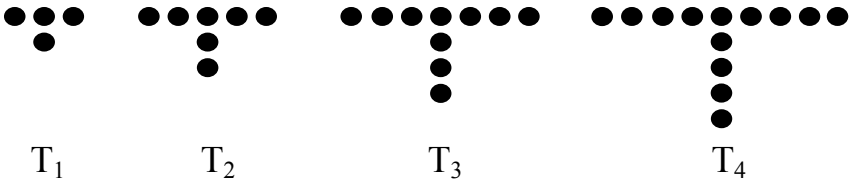
14. I choose three numbers from this number square – one number from each row and one number from each column. Then I multiply the three numbers. What is the largest possible product?

1	2	3
4	5	6
7	8	9

(A) 72 (B) 96 (C) 105 (D) 162 (E) 504

14. Ek kies drie getalle uit hierdie getalvierkant – een getal uit elke ry en een getal uit elke kolom. Dan vermenigvuldig ek die drie getalle. Wat is die grootste moontlike produk?

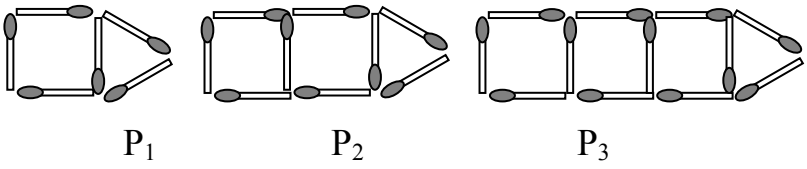
15. Sipho uses dots to build T-shapes as shown below. How many dots will he use for T_{50}?



(A) 500 (B) 151 (C) 200 (D) 153 (E) 501

15. Sipho bou T-vorms met kolletjies soos hieronder. Hoeveel kolletjies sal hy gebruik vir T_{50}?

16. Matchsticks are arranged in a pencil pattern as shown below. How many matches are there in P_{50}?



(A) 123 (B) 151 (C) 150 (D) 153 (E) 160

16. Vuurhoutjies word in ’n potloodpatroon gerangskik soos getoon. Hoeveel vuurhoutjies is daar in P_{50}?

17. You have ten blue socks, ten red socks and ten brown socks all mixed up in a drawer in a dark room. How many socks must you take from the drawer to be *sure* that you have a pair of the same colour?

(A) 11 (B) 20 (C) 21 (D) 4 (E) 22

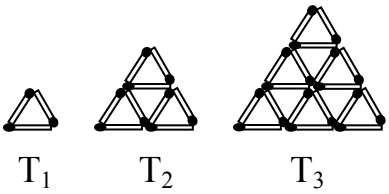
17. Jy het tien blou sokkies, tien rooi sokkies en tien bruin sokkies wat deurmekaar in ’n laai in ’n donker kamer lê. Hoeveel sokkies moet jy uit die laai uithaal om *seker* te wees dat jy ’n paar van dieselfde kleur sal hê?

18. Refer to the previous question. How many socks must you take from the drawer to be *sure* that you have a pair of blue socks?

(A) 11 (B) 20 (C) 21 (D) 4 (E) 22

18. Verwys na die vorige vraag. Hoeveel sokkies moet jy uit die laai haal om *seker* te wees dat jy ’n paar blou sokkies het?

19. Vusi builds a sequence of triangular patterns with matches as shown. In T_1 there is one triangle and in T_2 there are four triangles. How many triangles are there in T_{10}?



(A) 30 (B) 60 (C) 100 (D) 120 (E) 121

19. Vusi bou 'n ry driehoekpatrone met vuurhoutjies soos hieronder. In T_1 is daar een driehoek. In T_2 is daar vier driehoeke. Hoeveel driehoeke is daar in T_{10}?

(A) 30 (B) 60 (C) 100 (D) 120 (E) 121

20. In question 19, T_1 has three matches and T_2 has 9 matches. How many matches does Sipho need to build pattern T_{10}?

(A) 150 (B) 180 (C) 135 (D) 165 (E) 300

20. In vraag 19 : T_1 het drie vuurhoutjies en T_2 het 9 vuurhoutjies. Hoeveel vuurhoutjies het Sipho nodig om T_{10} te bou?

(A) 150 (B) 180 (C) 135 (D) 165 (E) 300

21. 4 September 2013 is a Wednesday. In which year will 4 September be on a Wednesday again?

(A) 2019 (B) 2020 (C) 2016 (D) 2017 (E) 2018

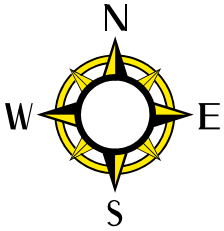
21. 4 September 2013 val op 'n Woensdag. In watter jaar sal 4 September weer op 'n Woensdag val?

(A) 2019 (B) 2020 (C) 2016 (D) 2017 (E) 2018

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

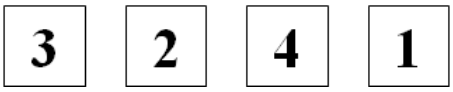
22. Ses dorpe A, B, C, D, E en F is soos volg geleë:

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?

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

23. Victoria has four cards (see below). How many different two-digit numbers can she make with these cards?



(A) 8 (B) 12 (C) 16 (D) 18 (E) 24

23. Victoria het vier kaarte (sien hieronder). Hoeveel verskillende tweesyfer-getalle kan sy met hierdie kaarte maak?

(A) 8 (B) 12 (C) 16 (D) 18 (E) 24

24. How many odd dates are there in any non-leap calendar year? (An *odd date* is any odd day of any month, e.g. 23 May, 23 June, 9 August. The 12th of any month is an *even* date.)

(A) 182 (B) 183 (C) 186 (D) 185 (E) 179

24. Hoeveel onewe datums is daar in enige kalenderjaar wat nie 'n skrikkeljaar is nie? ('n *Onewe* datum is enige onewe dag van enige maand, bv. 23 Mei, 23 Junie, 9 Augustus. Die 12de van enige maand is 'n *ewe* datum.)

(A) 182 (B) 183 (C) 186 (D) 185 (E) 179

25. Peter, Tom, Robert and Debbie are standing in a queue at the Post Office counter. If Peter leaves, Tom is in the second place. If Debbie leaves, Peter is first in the queue. Who is fourth in the queue?

(A) Robert (B) Peter (C) Debbie (D) Tom (E) Not enough information

25. Peter, Tom, Robert en Debbie staan in 'n tou by 'n toonbank in die Poskantoor. As Peter loop, is Tom in die tweede plek. As Debbie loop, is Peter voor in die tou. Wie is vierde in die tou?

(A) Robert (B) Peter (C) Debbie (D) Tom (E) Nie genoeg inligting nie