SA Mathematics Challenge 2013
GRADE 6 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 6 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. The sum of three consecutive numbers (e.g. 4, 5, 6) is 174. What is the biggest of these numbers?

   (A) 58 (B) 59 (C) 60

1. Die som van drie opeenvolgende getalle (bv. 4, 5, 6) is 174. Wat is die grootste van hierdie getalle?

   (D) 56 (E) 57

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2. What number is exactly halfway between 7,8 and 7,85?

   (A) 7,025 (B) 7,825 (C) $7,82\frac{1}{2}$

2. Watter getal is presies halfpad tussen 7,8 en 7,85?

   (D) 7,805 (E) 7,855

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3. What fraction is exactly halfway between $\frac{1}{4}$ and $\frac{1}{3}$?

   (A) $\frac{3}{8}$ (B) $\frac{1}{5}$ (C) $\frac{7}{24}$

3. Watter breuk is presies halfpad tussen $\frac{1}{4}$ en $\frac{1}{3}$?

   (D) $\frac{1}{12}$ (E) $\frac{7}{12}$

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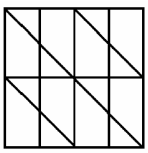
4. How many different triangles (of all sizes) are in this figure?



   (A) 12 (B) 14 (C) 16

4. Hoeveel verskillende driehoeke (van alle groottes) is daar in hierdie figuur?

   (D) 18 (E) 20

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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 (C) 22

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?

   (D) 23 (E) 24

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6. $2000 - 1999 + 1998 - 1997 + \ldots + 2 - 1 =$

   (A) 2000 (B) 1999 (C) 1000

6. $2000 - 1999 + 1998 - 1997 + \ldots + 2 - 1 =$

   (D) 0 (E) 1

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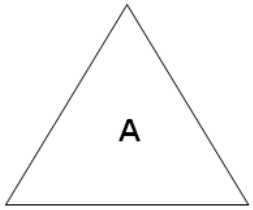
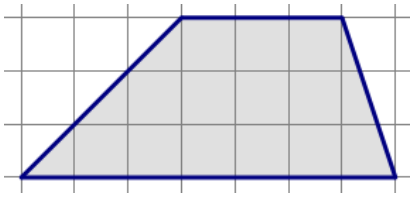
7. A side of the equilateral triangle A is three times the length of a side of equilateral triangle B. How many triangles B will fit into triangle A?



(A) 9 (B) 3 (C) 6 (D) 10 (E) 12

7. '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?

8. What is the area of the shaded figure below if one square represents 1 cm^2 ?



(A) 10 cm^2 (B) 12 cm^2 (C) 11,5 cm^2 (D) 10,5 cm^2 (E) 15 cm^2

8. Wat is die oppervlakte van die verdonkerde figuur hieronder as een vierkantjie 1 cm^2 voorstel?

9. On a farm there are some ducks and sheep. Andile counted the legs of the animals and found a total of 140 legs. Which of these can be the number of ducks and sheep on the farm?

(A) 60 ducks and 10 sheep
(B) 50 ducks and 15 sheep
(C) 40 ducks and 16 sheep
(D) 35 ducks and 18 sheep
(E) 30 ducks and 20 sheep

9. Op 'n plaas is daar 'n aantal eende en skape. Andile tel die bene van die diere en vind 'n totaal van 140 bene. Watter van hierdie kan die aantal eende en skape op die plaas wees?

(A) 60 eende and 10 skape
(B) 50 eende and 15 skape
(C) 40 eende and 16 skape
(D) 35 eende and 18 skape
(E) 30 eende and 20 skape

10. From a batch of 3 000 light bulbs a sample of 100 were randomly selected and tested. If five of the light bulbs in the sample were found to be defective, about how many defective light bulbs would be expected in the entire batch?

(A) 60 (B) 150 (C) 300 (D) 600 (E) 100

10. In 'n besending van 3 000 gloeilampe is 'n monster van 100 willekeurig gekies en getoets. As vyf van die gloeilampe foutief was, hoeveel foutiewe gloeilampe kan 'n mens in die hele besending verwag?

11. Two whole numbers, Δ and ∇ are chosen from this sequence of numbers:

1; 2; 3; 4; ...; 2013

What is the largest possible value of $\frac{\Delta+\nabla}{\Delta-\nabla}$?

(A) 4025 (B) 2012 (C) 4000 (D) 4026 (E) 4024

11. Twee heelgetalle Δ en ∇ word uit hierdie getalry gekies:

1; 2; 3; 4; ...; 2013

Wat is die grootste moontlike waarde van $\frac{\Delta+\nabla}{\Delta-\nabla}$?

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 (C) R75 (D) R30 (E) R40

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?

13. The cost of a jersey and a coat is R650. The coat costs R150 more than the jersey. What does the coat cost?

(A) R250 (B) R400 (C) R150 (D) R500 (E) R300

13. 'n Trui en 'n jas kos saam R650. Die jas kos R150 meer as die trui. Hoeveel kos die jas?

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) $\frac{5}{11}$

14. Watter van hierdie breuke is die grootste?

15. The sum of a number and a third of the number is 52. What is this number?

(A) 36 (B) 39 (C) 42 (D) 45 (E) 33

15. Die som van 'n getal en 'n derde van die getal is 52. Wat is hierdie getal?

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

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?

17. Jackie interviewed 50 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

17. Jackie het 50 graad 6-leerders ondervra oor hul TV voorkeure. 41 sê hulle hou van komedies, 35 sê hulle geniet aksieflieks en 30 sê hulle hou van beide. Hoeveel van die leerders hou nie van een van die twee nie?

18. It takes 852 digits to number every page in a book. How many pages are there in the book?

(A) 230 (B) 321 (C) 310 (D) 315 (E) 320

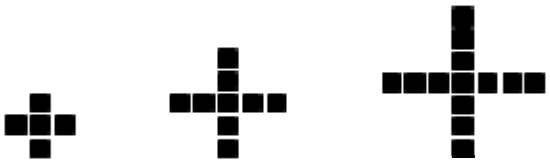
18. Om elke bladsy in 'n boek te nommer, word 852 syfers gebruik. Hoeveel bladsye is daar in die boek?

19. There are a total of seven bicycles and tricycles altogether in the shop window. They have a total of 19 wheels. How many bicycles are there?

(A) 4 (B) 2 (C) 3 (D) 7 (E) 5

19. By 'n fietswinkel staan daar altesaam sewe fietse en driewiele. Hulle het altesaam 19 wiele. Hoeveel fietse is daar?

20. Study the following pattern.
What is P_{20}?



$P_1 = 5$ $P_2 = 9$ $P_3 = 13$

(A) 77 (B) 79 (C) 80 (D) 81 (E) 83

20. Bestudeer die volgende patroon.
Wat is P_{20}?

21. A palindrome is a whole number that reads the same forwards or backwards (e.g. 4774). How many palindromes are there between 100 and 1000?

(A) 40 (B) 49 (C) 45 (D) 36 (E) None of these / Nie een hiervan nie

21. 'n Palindroom is 'n getal wat dieselfde lees van links en van regs (bv. 4774). Hoeveel palindrome is daar tussen 100 en 1000?

22. In how many different ways can the four people be arranged in a line next to each other for the photograph?

22. Op hoeveel verskillende maniere kan die vier mense in 'n lyn langs mekaar gerangskik word vir die foto?

(A) 4 (B) 24 (C) 12 (D) 16 (E) None of these / Nie een hiervan nie

23. Five children play tennis. Each child plays each of the others once. How many matches are played?

23. Vyf kinders speel tennis. Elke kind speel een keer teen elkeen van die ander. Hoeveel wedstryde word gespeel?

(A) 10 (B) 12 (C) 6 (D) 20 (E) 15

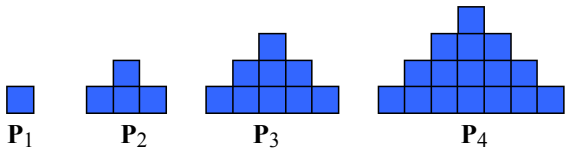
24. In question 23: If 10 children play in the same way, how many games are played all together?

24. In vraag 23: As 10 kinders op dieselfde manier speel, hoeveel wedstryde word altesaam gespeel?

(A) 90 (B) 40 (C) 45 (D) 100 (E) 20

25. Sipho builds "pyramids" with blocks as shown in the sketch below. How many blocks does he need to build $\mathbf{P}_{50}$?

25. Sipho bou "piramides" met blokke soos in die skets getoon. Hoeveel blokke het hy nodig om $\mathbf{P}_{50}$ te bou?



(A) 2500 (B) 1275 (C) 2401 (D) 2550 (E) 2601