

SA Mathematics Challenge 2014
GRADE 6 FINAL ROUND
30 JULY 2014

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 2014
GRAAD 6 FINALE RONDE
30 JULIE 2014

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. 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

2. In this alpha puzzle, each letter stands for a unique digit so that the number sentence is true. What is the value of I?

2. In hierdie alfa-raaisel staan elke letter vir 'n unieke syfer sodat die getalsin waar is. Wat is die waarde van I?

$$P + P + P = I = G + G$$



- (A) 9 (B) 8 (C) 7 (D) 6 (E) 5

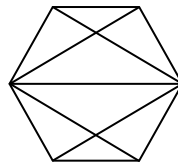
3. A car travels at a constant speed of 120 kilometres per hour for 30 minutes. What distance did the car travel?

3. 'n Motor beweeg teen 'n konstante spoed van 120 kilometer per uur vir 30 minute. Watter afstand het die motor beweeg?

- (A) 3600 km (B) 150 km (C) 120 km (D) 15 km (E) 60 km

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

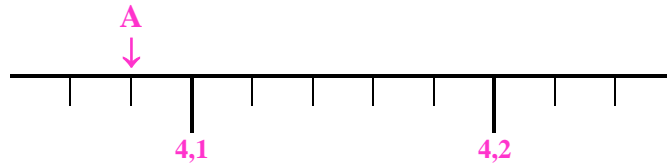
4. Hoeveel verskillende driehoeke (van alle groottes) is daar in hierdie figuur?



- (A) 8 (B) 10 (C) 12 (D) 14 (E) 16

5. How many whole numbers divide exactly into 100? (A) 8 (B) 6 (C) 7 (D) 10 (E) 9

6. What is the number indicated by A on the ruler? (A) 3,08 (B) 3,8 (C) 4,0 (D) 4,08 (E) 4,09



7. What is the next number in this pattern? 24, 12, 6, 3, $1\frac{1}{2}$, ... (A) $\frac{1}{2}$ (B) $\frac{3}{4}$ (C) $1\frac{1}{4}$ (D) $\frac{1}{4}$ (E) 1

8. From a batch of 3000 light bulbs, 100 were selected at random and tested. Five of the bulbs in the sample were found to be defective. About how many defective light bulbs would be expected in the entire batch? (A) 15 (B) 60 (C) 150 (D) 300 (E) 600

9. Thirty equally spaced points on a circle are labelled in order with the numbers 1 to 30. Which number is directly opposite to 7? (A) 21 (B) 22 (C) 23 (D) 24 (E) 20

10. 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 (C) 15 (D) 2 (E) 0,5

11. The scale shows that 4 books are balanced by 2 of the same books plus 6 kg. What is the mass of one book? (A) $1\frac{1}{2}$ kg (B) 6 kg (C) 3 kg (D) 2 kg (E) $2\frac{1}{2}$ kg



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

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 (C) R110

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

- (D) R170 (E) R85

14. Cookie uses $\frac{2}{3}$ cups of milk in a recipe for 12 people. How many cups of milk should she use in the recipe for 18 people?

- (A) $1\frac{1}{2}$ (B) $1\frac{1}{3}$ (C) $1\frac{2}{3}$

14. Koekie gebruik $\frac{2}{3}$ koppies melk in 'n resep vir 12 mense. Hoeveel koppies melk moet sy in die resep gebruik vir 18 mense?

- (D) $\frac{2}{3}$ (E) None of these
Nie een hiervan nie

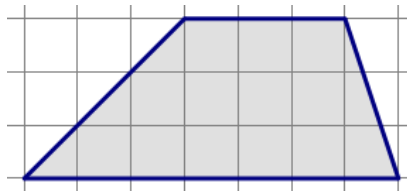
15. Samie opens a book. She multiplies the two page numbers and gets 1332. What is the left-hand page number?

- (A) 666 (B) 36 (C) 667

15. Samie maak 'n boek oop. Sy vermenigvuldig die twee bladsynommers en kry 1332. Wat is die bladsynommer aan die linkerkant?

- (D) 37 (E) 38

16. 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) $11,5\text{ cm}^2$ (D) $10,5\text{ cm}^2$ (E) 15 cm^2

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

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



- (A) 4 (B) 14 (C) 16

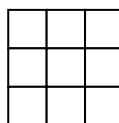
17. Op hoeveel verskillende maniere kan die vier mense in 'n lyn langs mekaar gerangskik word vir die foto?

- (D) 24 (E) None of these
Nie een hiervan nie

18. 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

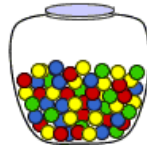
18. Die getalle van 1 tot 9 moet in die rooster hieronder ingevul word volgens die volgende reëls:

- 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?

- (D) 2 (E) You cannot know
Mens kan nie sê nie

19. There are 4 green marbles, 6 red marbles, 6 yellow marbles and 8 blue marbles in a container. If Devan draws a marble at random, what is the probability that the marble will not be blue?



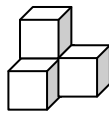
19. Daar is 4 groen albasters, 6 rooi albasters, 6 geel albasters en 8 blou albasters in 'n houer. As Devan willekeurig 'n albaster trek, wat is die waarskynlikheid dat die albaster nie blou sal wees nie?

- (A) $\frac{1}{8}$ (B) $\frac{2}{3}$ (C) $\frac{7}{8}$ (D) $\frac{1}{2}$ (E) $\frac{1}{3}$

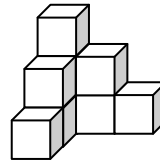
20. Thandi builds a pattern of cubes as shown. How many cubes will there be in *Pattern 20*?



Pattern 1



Pattern 2



Pattern 3

20. Thandi bou patrone met kubusse soos getoon. Hoeveel kubusse sal in *Patroon 20* wees?

- (A) 312 (B) 400 (C) 412 (D) 441 (E) 40