

SA Mathematics Challenge 2014
GRADE 7 FINAL ROUND
30 JULY 2014

SA Wiskunde-uitdaging 2014
GRAAD 7 FINALE RONDE
30 JULIE 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!

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 ratio of boys to girls in Grade 7 is 3:4. If there are 168 learners in Grade 7, how many girls are there in Grade 7?

- (A) 48 (B) 96 (C) 60

1. Die verhouding van seuns tot meisies in Graad 7 is 3:4. As daar 168 leerders in Graad 7 is, hoeveel meisies is daar in Graad 7?

- (D) 72 (E) 84

2. a , b , c and d are four adjacent dates in a calendar as shown. Which statement is true for *any* calendar?

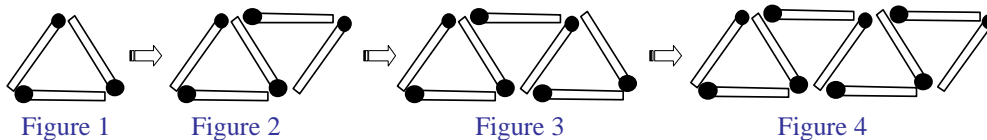
2. a , b , c en d is vier aangrensende datums in 'n kalender soos hieronder. Watter bewering is waar vir *enige* kalender?

Mon	Tues	Wed	Thu	Fri	Sat	Sun
		a	b			
		c	d			

- (A) $a + c = b + d$ (B) $a + d = b + c$ (C) $c - b = a - d$ (D) $a + b = c + d$ (E) $d - a = c - b$

3. The figures below are built with matches. How many matches are needed to build the 30th figure in this sequence?

3. Die figure hieronder word met vuurhoutjies gebou. Hoeveel vuurhoutjies word benodig om die 30^{ste} figuur in die patroon te bou?

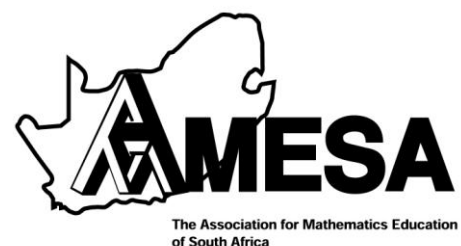
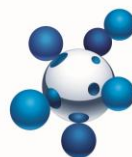
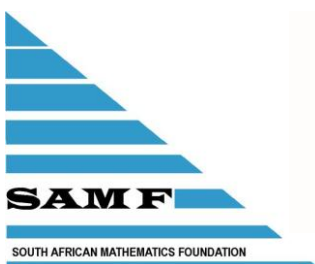


- (A) 31 (B) 60 (C) 61 (D) 59 (E) 63

4. On a farm there are some sheep and ducks. In all there are 40 heads and 124 legs. How many ducks are there?

4. Op 'n plaas is daar skape en eende. As daar altesaam 40 koppe en 124 bene is, hoeveel eende is daar?

- (A) 18 (B) 20 (C) 22 (D) 19 (E) 21



5. Consider the following pattern:

$$1^3 + 2^3 = 3^2$$

$$1^3 + 2^3 + 3^3 = 6^2$$

$$1^3 + 2^3 + 3^3 + 4^3 = 10^2$$

$$1^3 + 2^3 + 3^3 + 4^3 + \dots + 10^3 = n^2$$

What is the value of n ?

- (A) 45 (B) 49 (C) 55

5. Beskou hierdie getalpatroon:

$$1^3 + 2^3 = 3^2$$

$$1^3 + 2^3 + 3^3 = 6^2$$

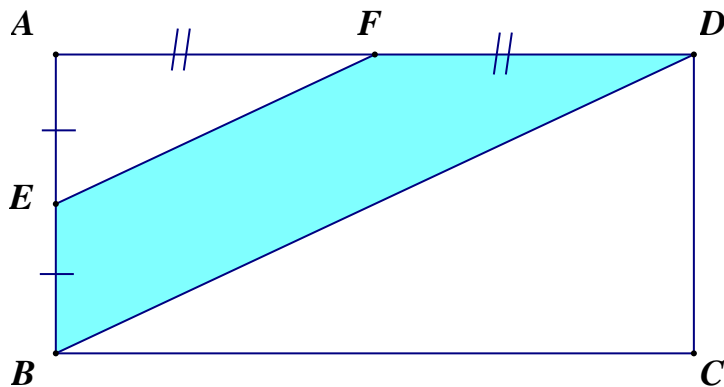
$$1^3 + 2^3 + 3^3 + 4^3 = 10^2$$

$$1^3 + 2^3 + 3^3 + 4^3 + \dots + 10^3 = n^2$$

Wat is die waarde van n ?

- (D) 64 (E) 66

6. In the diagram, $ABCD$ is a rectangle with dimensions 8 cm by 6 cm. E and F are midpoints of the sides. What is the area of the shaded region?



- (A) 24 cm^2 (B) 18 cm^2 (C) 12 cm^2 (D) 16 cm^2 (E) 32 cm^2

7. Joe writes down five numbers that have an average of 60. He then erases one of the numbers. The average of the remaining four numbers is 50. What number did Joe erase?

- (A) 60 (B) 50 (C) 90

7. Joe skryf vyf getalle neer met 'n gemiddelde van 60. Hy vee een van die getalle uit sodat die gemiddelde van die oorblywende vier getalle 50 is. Watter getal het Joe uitgevee?

- (D) 48 (E) 100

8. All the counting numbers are arranged in columns as shown below. In which column is 500?

A	B	C	D	E	F	G
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
⋮	⋮	⋮	⋮	⋮	⋮	⋮

- (A) A (B) B (C) C (D) D (E) E

8. Al die natuurlike getalle word in kolomme rangskik soos hieronder. In watter kolom is 500?

9. Two numbers are selected at random from the set of numbers $\{2, 5, 7, 8\}$ and are multiplied. What is the probability that the product is even?

- (A) $\frac{1}{6}$ (B) $\frac{3}{4}$ (C) $\frac{1}{2}$

9. Twee getalle word willekeurig uit die versameling $\{2, 5, 7, 8\}$ gekies en dan vermenigvuldig. Wat is die waarskynlikheid dat die produk ewe is?

- (D) $\frac{1}{3}$ (E) $\frac{5}{6}$

10. The inter-school soccer league consists of 8 teams. How many matches will each team play if every team plays against every other team twice – once at home and once away?

- (A) 7 (B) 8 (C) 16

10. Die inter-skole sokkerliga bestaan uit 8 spanne. Hoeveel wedstryde sal elke span speel as elke span twee keer teen elke ander span speel – een keer tuis en een keer weg

- (D) 14 (E) 24

11. 97 is a prime number. When its digits are reversed, the new number is also prime, i.e. 97 and 79 are both prime. How many two-digit prime numbers, less than 50, have this property?

- (A) 2 (B) 3 (C) 4

11. 97 is 'n priemgetal. As sy syfers omgeruil word, is die nuwe getal ook priem, d.i. 97 en 79 is albei priem. Hoeveel twee-syfer priemgetalle kleiner as 50 het hierdie eienskap?

- (D) 5 (E) 6

12. In how many different ways can two odd numbers be added to get an answer of 10? (The order does not matter.)

- (A) 1 (B) 2 (C) 3

12. Op hoeveel verskillende maniere kan twee onewe getalle opgetel word om 'n antwoord van 10 te gee? (Die volgorde maak nie saak nie.)

- (D) 5 (E) 6

13. Mr Safe has a 4-digit combination that opens his lock. He remembers that the four digits are 3, 5, 7 and 9, but he has forgotten the correct order. What is the most different combinations that he must try to open the safe?

- (A) 4 (B) 8 (C) 16

13. Mnr. Kluis het 'n vier-syfer kombinasie wat sy slot oopmaak. Hy onthou dat die vier syfers 3, 5, 7 en 9 is, maar hy kan nie die volgorde onthou nie. Wat is die meeste verskillende kombinasies wat hy sal moet probeer om die slot oop te maak?

- (D) 24 (E) 36

14. In the magic square below, the whole numbers from 2 to 10 are placed in the blocks so that each row, column and diagonal all add to the same number. What number is x ?

9		7
4		
	10	x

- (A) 2 (B) 3 (C) 5 (D) 6 (E) 8

14. In die towervierkant hieronder word die heelgetalle van 2 tot 10 in die blokkies geplaas sodat die som van die getalle in elke ry, kolom en hoeklyn gelyk is. Watter getal is x ?

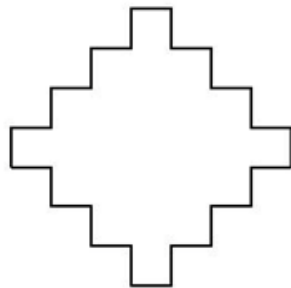
15. David and Andile play a game. For each game, the loser pays the winner R1. After playing a number of games, David has won four games while Andile has R2 more than what he started with. How many games did they play?

- (A) 6 (B) 8 (C) 10

15. David en Andile speel 'n speletjie. In elke ronde betaal die verloorde R1 aan die wenner. Nadat hulle verskeie rondes gespeel het, het David vier rondes gewen en Andile het R2 meer as waarmee hy begin het. Hoeveel rondes het hulle gespeel?

- (D) 12 (E) 9

16. 1 cm represents 8 km according to the scale on a map. How many square kilometres would be represented by an area of 240 cm^2 on the map?
- (A) 1920 (B) 15360 (C) 3840 (D) 7200 (E) None of these
Nie een hiervan nie
-
17. Paul is travelling from town A to town B at a speed of 72 km/h. At the same time Peter is travelling from town B to town A at a speed of 80 km/h. They meet after 45 minutes. What is the distance between A and B?
- (A) 114 km (B) 76 km (C) 152 km (D) 136 km (E) 120 km
-
18. In how many different ways can two identical dice be tossed so that the sum of the two top numbers is less than 9?
- (A) 32 (B) 26 (C) 24 (D) 18 (E) 21
-
19. There are three children in a certain family. What is the probability that at least one of the three children is a girl?
- (A) $\frac{1}{2}$ (B) $\frac{1}{3}$ (C) $\frac{1}{8}$ (D) $\frac{3}{8}$ (E) $\frac{7}{8}$
-
20. All 28 sides of the polygon are equal in length with adjacent sides perpendicular. If the perimeter of the polygon is 56 cm, what is the area of the polygon?
20. Al 28 sye van hierdie veelhoek is ewe lank, en aangrensende sye is loodreg op mekaar. As die omtrek van die veelhoek 56 cm is, wat is die oppervlakte van die veelhoek?



- (A) 64 cm^2 (B) 81 cm^2 (C) 100 cm^2 (D) 121 cm^2 (E) 144 cm^2