

SA Mathematics Challenge 2016

GRADE 6 FIRST ROUND

SA Wiskunde-uitdaging 2016

GRAAD 6 EERSTE RONDE

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 tydwend.
- Ons hoop jy geniet dit!

1. What is the 10th number in this sequence?

39, 35, 31, 27, 23, 19, ...

- (A) 3 (B) 7 (C) 4 (D) 8 (E) -1

2. A Grade 6 learner is given a task that must be completed in one hour. If he works for a quarter of an hour, how many minutes remain to complete the task?

- (A) 15 (B) 25 (C) 30 (D) 45 (E) 75

3. Which of these is the largest fraction?

- (A) $\frac{2}{5}$ (B) $\frac{7}{15}$ (C) $\frac{10}{21}$ (D) $\frac{9}{19}$ (E) $\frac{4}{9}$

4. The symbol ψ represents a number. What value of ψ makes this number sentence true?

$$3 \times \psi - 3 = 9 - \psi$$

- (A) 2 (B) 3 (C) 4 (D) 9 (E) There is no solution

Daar is geen oplossing nie

5. Instead of adding 8 to a number, Peter divided the number by 8. His answer was 4. What was the correct answer had he not made a mistake?

- (A) 16 (B) 32 (C) 24 (D) 8 (E) 40

1. Wat is die 10^{de} getal in hierdie ry?

2. 'n Graad 6 leerder kry 'n taak om in een uur te voltooi. As hy 'n kwartier werk, hoeveel minute bly daar oor om die taak te voltooi?

3. Watter van hierdie is die grootste breuk?

4. Die simbool ψ staan vir 'n getal. Watter waarde van ψ maak hierdie getalsin waar?

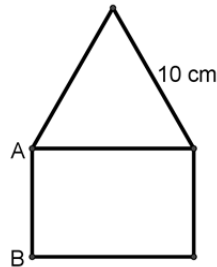
5. In plaas van om 8 by 'n getal te tel, het Peter die getal deur 8 gedeel. Sy antwoord was 4. Wat was die korrekte antwoord as hy nie 'n fout gemaak het nie?

6. Steven is building a cube with identical small blocks. How many small blocks has he used to create this figure?
6. Steven is besig om 'n kubus met identiese klein blokke te bou. Hoeveel klein blokke het hy gebruik om hierdie figuur te bou?



- (A) 14 (B) 19 (C) 20 (D) 22 (E) 25

7. An equilateral triangle is placed on top of a rectangle to form the figure below. (An equilateral triangle is a triangle with all three sides equal.) The length of one side of the equilateral triangle is 10 cm. The perimeter of the figure is 44 cm. What is the length of AB?
7. 'n Gelyksydige driehoek word op 'n reghoek geplaas om onderstaande figuur te vorm. ('n Gelyksydige driehoek is 'n driehoek met al drie sye ewe lank.) Die sylengte van die gelyksydige driehoek is 10 cm. Die omtrek van die figuur is 44 cm. Wat is die lengte van AB?



- (A) 10 cm (B) 8cm (C) 7 cm (D) 14 cm (E) Not enough information
Nie genoeg inligting nie

8. A boxer is on a special diet and loses 18 kg. This loss represents $\frac{1}{6}$ of the boxer's original mass. What was the original mass of the boxer?
8. 'n Bokser volg 'n spesiale dieet en verloor 18 kg. Dit is $\frac{1}{6}$ van die bokser se oorspronklike massa. Wat was die bokser se oorspronklike massa?
- (A) 3 kg (B) 24 kg (C) 36 kg (D) 108 kg (E) 54 kg

9. Zilks and Zogs are imaginary types of insects. Zilks have 5 spots and Zogs have 7 spots. Altogether a group of nine Zilks and Zogs have 57 spots. How many Zogs are there in the group?
9. Zilke en Zogs is denkbeeldige tipes insekte. Zilke het 5 kolle en Zogs het 7 kolle. 'n Groep van nege Zilke en Zogs het altesaam 57 kolle. Hoeveel Zogs is daar in die groep?



- (A) 3 (B) 4 (C) 5 (D) 6 (E) 7

10. Consecutive numbers are whole numbers which follow each other in order. For example, 45, 46, 47 are three consecutive numbers. What is the difference between the smallest and the biggest of five consecutive numbers?
10. Ons noem getalle wat op mekaar volg opeenvolgende getalle. Byvoorbeeld, 45, 46, 47 is drie opeenvolgende getalle. Wat is die verskil tussen die kleinste en grootste van vyf opeenvolgende getalle?
- (A) 4 (B) 5 (C) 6 (D) 8 (E) 2

11. Elihle uses a 225 ml cup to fill an empty kettle. If the kettle has a capacity of 1700 ml, how much water will still be left in the last cup once the kettle is full?

- (A) 20 ml (B) 60 ml (C) 175 ml (D) 100 ml (E) 25 ml

11. Elihle gebruik 'n 225 ml-koppie om 'n leë ketel vol te maak. As die ketel 'n kapasiteit van 1700 ml het, hoeveel water sal nog in die laaste koppie wees wanneer die ketel vol is?

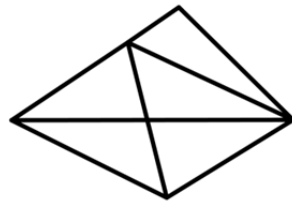
12. What fraction of this square is shaded?



- (A) $\frac{1}{2}$ (B) $\frac{3}{4}$ (C) $\frac{7}{16}$ (D) $\frac{7}{8}$ (E) $\frac{9}{16}$

12. Watter breuk van hierdie vierkant is verdonker?

13. How many triangles, of any size, are in this figure?



- (A) 5 (B) 8 (C) 9 (D) 10 (E) 11

13. Hoeveel driehoeke, van enige grootte, is in hierdie figuur?

14. The numbers on opposite sides (faces) of a dice add up to 7. If the faces of the two dice below are pushed together, thereby hiding the 'one' and the 'six', what is the sum of the numbers on the eight exposed faces?



- (A) 12 (B) 22 (C) 23 (D) 27 (E) 30

14. Die som van die getalle op die oorsaande sye (vlakke) van 'n dobbelsteen is 7. As die vlakke van die twee dobbelstene hieronder teen mekaar gestoot word sodat die 'een' en die 'ses' versteek word, wat is die som van die getalle op die agt sigbare vlakke?

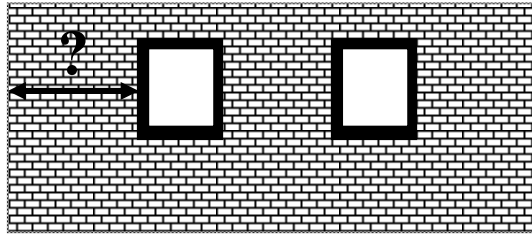
15. If the average of five consecutive numbers is 10, what is the product of the smallest and largest numbers?

- (A) 50 (B) 5 (C) 91 (D) 96 (E) 104

15. As die gemiddelde van vyf opeenvolgende getalle 10 is, wat is die produk van die kleinste en grootste getalle?

16. Amy wants to mount two picture frames a distance of 20 cm apart so that the frames are the same distance from the left and right edges of the wall. If the wall is 300 cm wide and each frame is 60 cm wide, how far from the edge must each frame be?

16. Amy wil twee prentframe 20 cm uitmekaar teen 'n muur ophang sodat die rame ewe ver van die linker en regterkante van die muur hang. As die muur 300 cm wyd is en elke raam is 60 cm wyd, hoe ver van die kant van die muur moet elke raam wees?



- (A) 20 cm (B) 135 cm (C) 80 cm (D) 140 cm (E) 160 cm

17. In this alpha puzzle, each letter stands for a unique digit so that the calculation is correct. What is the value of $A + B + C$?

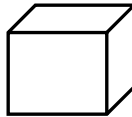
17. In hierdie alfa-raaisel staan elke letter vir 'n unieke syfer sodat die berekening korrek is. Wat is die waarde van $A + B + C$?

$$\begin{array}{r}
 A \ B \ A \\
 + \quad B \ 8 \\
 \hline
 C \ 9 \ 0 \\
 \hline
 \end{array}$$

- (A) 14 (B) 13 (C) 10 (D) 9 (E) 8

18. What is the least number of 'cuts' needed to divide a cubic block of cheese into eight identical pieces?

18. Wat is die minste getal 'snye' nodig om 'n blok kaas ('n kubus) in agt identiese stukke te verdeel?



- (A) 4 (B) 3 (C) 7 (D) 8 (E) 6

19. In a World Cup soccer match the final score was 2 – 2, but we do not know the half-time score. How many half-time scores were possible?

19. In 'n wêreld sokkerbekerwedstryd was die finale telling 2 – 2, maar ons weet nie wat die rustydteelling was nie. Hoeveel verskillende rustydtellings was moontlik?

- (A) 4 (B) 7 (C) 8 (D) 9 (E) 10

20. A chocolate and a can of soda cost R18,50. A chocolate and a packet of chips cost R15,00. A packet of chips and a can of soda cost R12,50. How much would it cost for a chocolate, a packet of chips and a can of soda?

20. 'n Sjokolade en 'n koeldrank kos saam R18,50. 'n Sjokolade en 'n pakkie skyfies kos saam R15,00. 'n Pakkie skyfies en 'n koeldrank kos saam R12,50. Hoeveel kos 'n sjokolade, 'n pakkie skyfies en 'n koeldrank saam?

- (A) R25,50 (B) R31,00 (C) R23,00 (D) R21,00 (E) R46,00