Jet SA Mathematics Challenge

GRADE 6 FIRST ROUND
AUGUST 2012

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!

Jet SA Wiskunde-uitdaging

GRAAD 6 EERSTE RONDE
AUGUSTUS 2012

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 even numbers (e.g. 4+6+8) is 174. What is the biggest of these numbers?

   (A) 58 (B) 62 (C) 59 (D) 56 (E) 60

1. Die som van drie opeenvolgende ewe getalle (bv. 4+6+8) is 174. Wat is die grootste van hierdie getalle?

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2. Starting at 8 and counting by 8s, Samuel counts 8, 16, 24, 32, ... Which of these numbers will he count?

   (A) 721 (B) 722 (C) 724 (D) 726 (E) 728

2. Samuel begin by 8 en tel in 8s: 8, 16, 24, 32, ... Watter van hierdie getalle sal hy tel?

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3. Starting at 4 and counting by 8s, Samuel counts 4, 12, 20, 28, ... Which of these numbers will he count?

   (A) 721 (B) 722 (C) 724 (D) 726 (E) 728

3. Samuel begin by 4 en tel in 8s: 4, 12, 20, 28, ... Watter van hierdie getalle sal hy tel?

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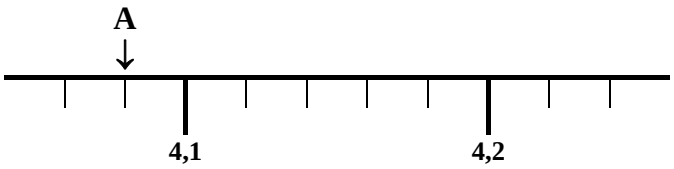
4. What is the number indicated by A on the ruler?



   (A) 3,08 (B) 3,8 (C) 4,0 (D) 4,08 (E) 4,09

4. Wat is die getal aangedui deur A op die liniaal?

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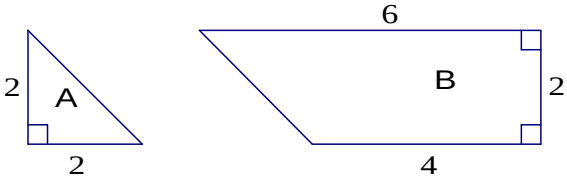
5. How many triangles A can fit into the trapezoid B?



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

5. Hoeveel driehoeke A kan in trapesium B inpas?

SAMF
SOUTH AFRICAN MATHEMATICS FOUNDATION

AMESA
The Association for Mathematics Education of South Africa

6. What is the ones (last) digit in the product

$19 \times 18 \times 17 \times 16 \times 15 \times 14 \times 13 \times 12 \times 11$?

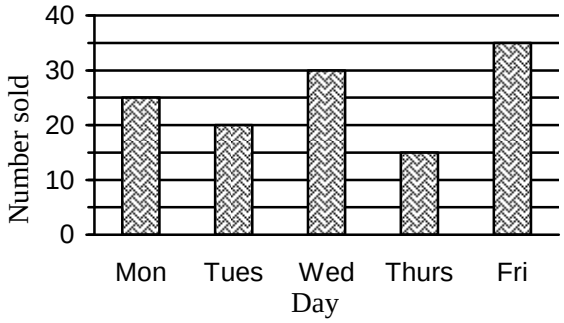
(A) 1 (B) 6 (C) 4 (D) 2 (E) 0

6. Wat is die ene-syfer (laaste syfer) in die produk

$19 \times 18 \times 17 \times 16 \times 15 \times 14 \times 13 \times 12 \times 11$?

7. The graph shows the number of cartons of milk sold each day of a week at a school. How many cartons of milk did the school sell that week?

7. Die grafiek toon die getal bokse melk wat elke dag van 'n week by 'n skool verkoop is. Hoeveel bokse melk het die skool in daardie week verkoop?



(A) 125 (B) 115 (C) 135 (D) 25 (E) None of these / Nie een hiervan nie

8. 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 (D) 23 (E) 24

8. '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?

9. What is the missing number ***a*** in the table?

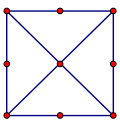
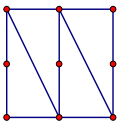
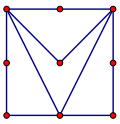
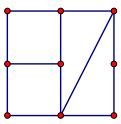
1	2	4	7
1	***a***	7	13

(A) 2 (B) 3 (C) 4 (D) 5 (E) 6

9. Wat is die ontbrekende getal ***a*** in die tabel?

1	2	4	7
1	***a***	7	13

10. Which square is *not* divided into quarters?

(A)  (B)  (C)  (D)  (E) None of these / Nie een hiervan nie

10. Watter vierkant is *nie* in kwarte verdeel nie?

11. 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 (D) 24 (E) 36

11. 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?

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

(A) 666 (B) 38 (C) 667 (D) 37 (E) 36

13. Susie maak ’n boek oop. Sy vermenigvuldig die twee bladsynommers en kry 1332. Wat is die bladsynommer aan die linkerkant?

14. Andile starts at 7 and counts in 7s: 7; 14; 21; ...
Dawid starts at 5 and counts in 13s: 5; 18; 31; ...

What is the smallest number that they will both count?

(A) 42 (B) 56 (C) 70 (D) 84 (E) 98

14. Andile begin by 7 en tel 7’s: 7; 14; 21; ...
Dawid begin by 5 en tel in 13’s: 5; 18; 31; ...

Wat is die kleinste getal wat albei sal tel?

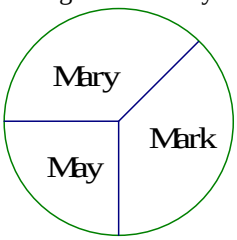
15. Xoli wrote all of the whole numbers from 300 to 400 on a piece of paper. How many times did she write the digit 3?

(A) 110 (B) 102 (C) 122 (D) 119 (E) 120

15. Xoli skryf al die heelgetalle vanaf 300 tot 400 op 'n stukkie papier. Hoeveel keer het sy die syfer 3 geskryf?

16. This pie chart shows how much pocket money three children get. If May gets R12, how much does Mark get?

16. Hierdie sirkeldiagram toon hoeveel sakgeld drie kinders kry. As May R12 kry, hoeveel kry Mark?



(A) R18 (B) R16 (C) R24 (D) R36 (E) R20

17. The number pattern below is called Pascal’s Triangle. What is the missing number ***a***?

17. Die getalpatroon hieronder word Pascal se Driehoek genoem. Wat is die ontbrekende getal ***a***?

1
1 1
1 2 1
1 3 3 1
1 4 6 4 1
1 5 10 10 5 1
1 6 15 *a* 15 6 1

(A) 28 (B) 20 (C) 30 (D) 19 (E) 22

18. When Joe was 5 years old, Diana was 8. When Joe was 8, Cindy was 6. How old was Diana when Cindy was 8?

(A) 8 (B) 16 (C) 11 (D) 13 (E) 14

18. Toe Joe 5 jaar oud was, was Diana 8. Toe Joe 8 was, was Cindy 6. Hoe oud was Diana toe Cindy 8 was?

19. When a number is multiplied by itself, the result is a *square number*. For example, $3 \times 3 = 9$ and $6 \times 6 = 36$ are square numbers. How many square numbers are there less than 1000?

(A) 31 (B) 961 (C) 20 (D) 25 (E) None of these

19. As ’n getal met homself vermenigvuldig word, is die resultaat ’n volkome *vierkant*. Byvoorbeeld, $3 \times 3 = 9$ en $6 \times 6 = 36$ is vierkante. Hoeveel vierkante kleiner as 1000 is daar?

(E) Nie een hiervan nie

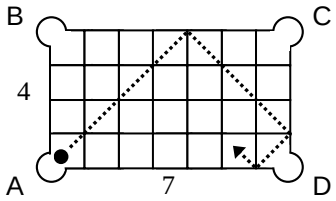
20. In a competition the first four judges gave Dori scores of 4,5; 4,6; 4,7 and 5,0. What score did the fifth judge give her if her average score from the five judges was 4,8?

(A) 4,8 (B) 4,9 (C) 5,0 (D) 5,1 (E) 5,2

20. In ’n kompetisie het die eerste vier beoordelaars vir Dori tellings gegee van 4,5; 4,6; 4,7 en 5,0. Watter telling het die vyfde beoordelaar haar gegee as haar gemiddelde telling van die vyf beoordelaars 4,8 was?

21. This special 4 by 7 snooker table has a pocket at each corner. A ball is hit away from pocket A at an angle of 45° to the sides of the table. The ball rebounds from each side of the table at an angle of 45° until it drops into one of the pockets. In which pocket will the ball drop?

21. Hierdie spesiale 4 by 7 snoekertafel het ’n sak by elke hoek. ’n Bal word vanaf sak A weggeskiet teen ‘n hoek van 45° met die kant van die tafel. Die bal bons van elke kant van die tafel teen ’n hoek van 45° totdat dit in een van die sakke val. In watter sak sal die bal val?



(A) A (B) B (C) C (D) D (E) One cannot know / Mens kan nie sê nie

22. Find the value of $a \times b \times c \times d$ if

$a \times b = 20$
$b \times c = 14$
$c \times d = 35$
$d \times a = 50$

(A) 840 (B) 700 (C) 1470 (D) 1260 (E) None of these / Nie een hiervan nie

22. Bepaal die waarde van $a \times b \times c \times d$ as

$a \times b = 20$
$b \times c = 14$
$c \times d = 35$
$d \times a = 50$

23. The whole numbers, starting with 1, are written in order 1234567891011121314 ...

What digit will appear in the 100th place?

(A) 0 (B) 4 (C) 5 (D) 6 (E) 7

23. Die heelgetalle, beginnende met 1, word geskryf in die volgorde 1234567891011121314 ...

Watter syfer sal in die 100ste plek geskryf word?

24. We know that exactly one of the five statements below is true. Which one is true?

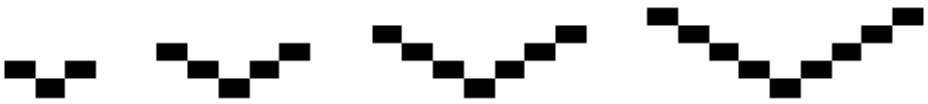
(A) One of these statements is false
(B) Two of these statements are false
(C) Three of these statements are false
(D) Four of these statements are false
(E) Five of these statements are false

24. Ons weet dat presies een van die vyf bewerings hieronder waar is. Watter een is waar?

(A) Een van hierdie bewerings is onwaar
(B) Twee van hierdie bewerings is onwaar
(C) Drie van hierdie bewerings is onwaar
(D) Vier van hierdie bewerings is onwaar
(E) Vyf van hierdie bewerings is onwaar

25. Sipho uses tiles to build V-shapes as shown below. How many tiles will he use for $\mathbf{V}_{50}$?

25. Sipho bou V-vorms met teëls soos hieronder. Hoeveel teëls sal hy gebruik vir $\mathbf{V}_{50}$?



$\mathbf{V}_1$ $\mathbf{V}_2$ $\mathbf{V}_3$ $\mathbf{V}_4$

(A) 101 (B) 100 (C) 99 (D) 125 (E) None of these / Nie een hiervan nie