



**LIVING MATHS**  
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The Living Maths Mathematics  
Olympiad 2004 Grade: 7



**PLEASE NOTE:**

- Answer the questions according to the instructions on the answer sheet.
- Choose an answer from the possibilities below each problem.
- The teacher may explain the instructions to the learners.
- You may not use a calculator.
- Read the questions carefully!
- We hope you enjoy it!

**NEEM KENNIS:**

- Beantwoord die vrae deur die instruksies op die antwoordblad te volg.
- Kies 'n antwoord uit die onderstaande moontlikhede na elke probleem.
- Die onderwyser mag die instruksies aan die leersers verduidelik.
- 'n Sakrekenaar mag nie gebruik word nie.
- Lees die vrae aandagtig!
- Geniet dit!

1.  $5 \times 6 + 2 - 3 \times 2 = ?$

- (A) 74 (B) 58 (C) 26 (D) 48 (E) 64

2. Which of the following numbers is the smallest?  
Watter van die volgende getalle is die kleinste?

- (A) 0,08 (B) 0,1694 (C) 0,082 (D) 0,1 (E) 0,0801

3. The four digit number 3RR1 is divisible by 9. What digit does R represent?  
Die viersyfergetal 3RR1 is deelbaar deur 9. Watter syfer word deur R verteenwoordig?

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

4. The numbers 2,4,6 and 8 are a set of four consecutive even numbers. If the sum of five consecutive even numbers is 320, then what is the smallest of the five numbers?

Die getalle 2,4,6 en 8 is 'n stel van opeenvolgende ewegegetalle. As die som van 5 opeenvolgende ewegegetalle 320 is, wat is die kleinste van die vyf getalle?

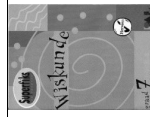
- (A) 60 (B) 62 (C) 64 (D) 80 (E) 82

5. If all the counting numbers are arranged in columns as shown in the picture below, under which column-letter would you find 1000?

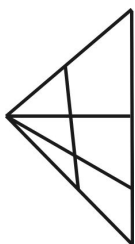
As al die telgetalle gerangskik word in kolomme soos hieronder, onder watter letterkolom sal 1000 geskryf word?

P	Q	R	S	T	U	V
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	.....	.....

- (A) S (B) U (C) V (D) Q (E) R



6. How many triangles are there in the figure on the right?  
Hoeveel driehoëke is daar in die figuur?



- (A) 10 (B) 11 (C) 12 (D) 13 (E) 14

7. The answer of  $X \div 8,26$  is B. What is the answer of  $X \div 826$ ?  
Die antwoord van  $X \div 8,26$  is B. Wat is die antwoord van  $X \div 826$ ?

- (A)  $826X$  (B)  $B \times 10$  (C)  $B \times 100$  (D)  $B \div 10$  (E)  $B \div 100$

8.  $2 \times 2 \times 2 \times 2 \times \dots (40 \text{ times})$  can be written as  $2^{40}$ . What is half of  $2^{40}$ ?  
 $2 \times 2 \times 2 \times 2 \times \dots (40 \text{ keer})$  kan geskryf word as  $2^{40}$ . Wat is die helfte van  $2^{40}$ ?

- (A)  $2^{20}$  (B)  $2^{40} - 2$  (C)  $2^{39}$  (D)  $(2 \times 40) \div 2$  (E) None of these/Nie een hiervan nie

9. A combination lock has 3 digits. Each digit can be any of the numbers from 0 to 9. How many different combinations are possible?

'n Kombinasieslot het 3 syfers. Die syfers is tussen 0 en 9. Hoeveel verskillende kombinasies is moontlik?

- (A) 27 (B) 999 (C) 1000 (D) 100 (E) 299

10. 36 tiles are used to cover a square floor. How many tiles are needed to tile a floor, which is twice as long and twice as wide?

- (A) 144 (B) 72 (C) 36 (D) 94 (E) 288

36 teëls word gebruik om 'n vierkantige vloer te bedek. Hoeveel teëls is nodig om die vloer te bedek wat dubbel die lengte en breedte is?

11. A rectangular room is p metres long and q metres wide. Which of the following cannot be used to determine the perimeter of the room?

'n Vierkantige kamer is p meter lank en q meter breed. Watter van die volgende kan nie gebruik word om vas te stel wat die omtrek van die kamer is nie?

- (A)  $p+q+p+q$  (B)  $(p+q) \times 2$  (C)  $2 \times p+2 \times q$  (D)  $p \times q+p \times q$  (E)  $p+p+q+q$

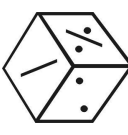





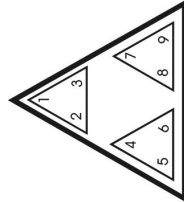





12. Pangel increases the price of her sweets by 10%. Customers paying cash get a 10% discount on the new price. Which statement(s) is/are true?

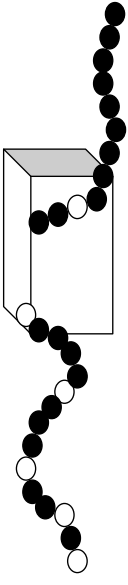
Pangel verhoog die prys van haar lekkers met 10%. Klante wat kontant betaal, kry 10% afslag op die nuwe prys. Watter stelling is waar?

The cash paying customer will pay / Die kontant-klante betaal:

1. the same as the old price/ dieselfde as die ou prys
2. more than the old price/ meer as die ou prys
3. less than the old price / minder as die ou prys

- (A) 2 (B) 3 (C) 1 (D) 1 and/en 2 (E) 1 and/en 3

13. $4^3 = 4 \times 4 \times 4 = 64$ , so $4^3$ ends with a 4. On what digit does $4^{2004}$ end with? $4^3 = 4 \times 4 \times 4 = 64$ , dus $4^3$ eindig op 'n 4. Op watter syfer sal $4^{2004}$ eindig ?	(A) 2 (B) 4 (C) 6 (D) 8 (E) 0
14. @ is a maths operation that gives the following results: @ is 'n wiskundige bewerking wat die volgende uitslag lewer: $3 @ 5 = 17$ $2 @ 7 = 16$ $4 @ 8 = 34$ $6 @ 9 = 56$ What is the result of $6 @ 7$ ? Wat is die uitslag van $6 @ 7 = ?$	(A) 40 (B) 41 (C) 42 (D) 43 (E) 44
15. A bottle of juice costs R3,00 at the tuck shop. The juice on its own, costs R2,50 more than the bottle. How much does the bottle cost? 'n Botfel sap kos R3,00 by die snoeple. Die sap op sy eie kos R2,50 meer as die botfel. Hoeveel kos die botfel?	(A) R0,50 (B) R0,25 (C) R3,00 (D) R5,50 (E) R0,70
16. What is the angle between the hour hand and the minute hand of a clock at 1:30? Wat is die hoek tussen die uurwyser en die minutewyser van 'n horlosie om 1:30?	(A) $120^\circ$ (B) $135^\circ$ (C) $150^\circ$ (D) $180^\circ$ (E) $160^\circ$
17. In the figure on the far right, a symbol has been drawn on each of the three faces of the cube. The other three faces are blank. Which of the figures below is another view of the same cube? In die figuur heel regs is simbole op 3 vlakke van die kubus getrek. Die ander 3 vlakke is skoon. Watter van die figure is 'n ander aansig van dieselfde kubus?	     
18. The value of $\frac{A}{B} \cdot \frac{C}{C}$ is $(A+B) \div C$ . What is the value of the figure on the right? Die waarde van $\frac{A}{B} \cdot \frac{C}{C}$ is $(A+B) \div C$ . Wat is die waarde van die figuur op die regterkant?	      (A) $\frac{3}{2}$ (B) $\frac{4}{7}$ (C) $\frac{5}{6}$ (D) $\frac{7}{11}$ (E) $\frac{13}{17}$
19. Four children write a test. The average mark for the four of them was 80%. A fifth child joins the group with a test mark of 40%. What is the new average mark for the 5 of them? Vier kinders skryf 'n toets. Die gemiddelde punt vir die vier van hulle was 80%. 'n Vyfde kind sluit by die groep aan met 'n toetspunt van 40%. Wat sal die nuwe gemiddelde punt van die groep van 5 wees?	(A) 60% (B) 65% (C) 67% (D) 70% (E) 72%

20. This string of beads was made according to a certain pattern. How many beads are hidden in the box? Die string krale was gemaak volgens 'n sekere patroon. Hoeveel krale is versteek in die boks?		(A) 27 (B) 29 (C) 22 (D) 36 (E) 23
21. 3 taps flowing at the same speed will take 9 minutes to fill a bath. How long will only 2 taps take to fill the same bath? 3 kranes wat teen dieselfde spoed vloei sal 'n bad volmaak binne 9 minute. Hoe lank sal dit neem vir 2 kranes om dieselfde bad vol te maak?	(A) 18 min (B) 6 min (C) $4\frac{1}{2}$ min (D) 54 min (E) $13\frac{1}{2}$ min	
22. A farmer has some chickens and some cows. If there are 71 heads and 184 legs, how many cows does she have? 'n Boer het hoenders en koete. As daar 71 koppe en 184 bene is, hoeveel koete het sy?	(A) 21 (B) 30 (C) 31 (D) 50 (E) 41	
23. If a two-digit number is divided by the sum of its digits (e.g. $47 \div 11$ ), what is the largest possible answer? As 'n tweesyfergetal gedeel word met die som van dieselfde syfers (b. $47 \div 11$ ), wat die grootste moontlike antwoord?	(A) 9 (B) 10 (C) 12 (D) 5.5 (E) 8.5	
24. There is a town in South Africa where 5% of all the people living there have unlisted phone numbers. If you selected 100 names at random from the town's phone directory, on average, how many of these people would have unlisted phone numbers?	(A) 95 (B) 500 (C) 5 (D) 50 (E) 0	
25. What is the total number of combinations that can be created by rearranging the letters in the word MATH? Wat is die totale getal van kombinasies wat verkry kan word deur die herrangskikking van die letters in MATH?	(A) 24 (B) 12 (C) 6 (D) 10 (E) Infinitely many/Oneindig baie	

Papers written by Steve Sherman and translated by Maryna de Lange