

The Living Maths Olympiad 2000

Grade: 7

It's about the stuff in maths and the maths in stuff.

PLEASE NOTE:

- Answer the questions according to the instructions on the answer sheet.
- You may use a calculator.
- We hope you enjoy it!

LET OP ASSEMBLIEF:

- Beantwoord die vrae volgens die instruksies op die antwoordblad.
- Jy mag 'n sakrekenaar gebruik.
- Ons hoop jy geniet dit!

QAPHELA:

- Phendula imibuzo ngokwemigaqo ekwiphepha olinikiweyo
- Ungayisebenzisa i-Calculator
- Siyathemba uyakulonwabela!

1. $6 \times 9 - 7 \times 8 + 3 \times 5$ is equal to

(A) 13

(B) 17

1. $6 \times 9 - 7 \times 8 + 3 \times 5$ is gelyk aan

(C) 19

(D) 28

1. $6 \times 9 - 7 \times 8 + 3 \times 5$ likhupha isiphumo esingama:

(E) 29

2. The total number of digits needed to write out all the numbers from 1 to 100 is:

(A) 191

(B) 192

2. Die totale aantal syfers wat benodig word om al die getalle vanaf 1 tot 100 uit te skryf, is:

(C) 193

(D) 194

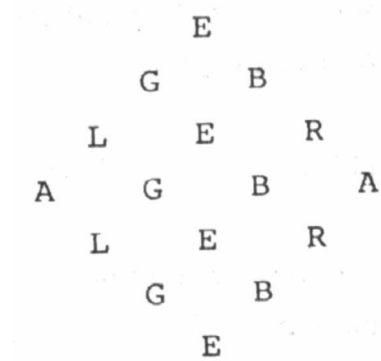
2. linani lee dijithi ezifunekayo xa kubhalwa onke amanani asukela kwisi 1 ukuya kwi 100 lingama:

(E) 195

3. In how many ways can you read the word ALGEBRA from the figure ?

3. Op hoeveel verskillende maniere kan jy die word ALGEBRA van die skets aflees?

3. Zingaphi iindlela ongafunda ngazo igama elingu ALGEBRA kulo mzobo? .



- (A) 2 (B) 10 (C) 20 (D) 36 (E) 24

4. The notation $a * b$ means the remainder when a is divided by b . For example, $9 * 4 = 1$. The value of $11 * (7 * 4)$ is:

4. Die notasie $a * b$ staan vir die res wanneer a deur b gedeel word, byvoorbeeld $9 * 4 = 1$. Die waarde van $11 * (7 * 4)$ is:

4. Indlela ekubhalwe ngayo u $a * b$ ixela intsalela xa u a athe wohlulwa ngo b . Umzekelo, $9 * 4 = 1$. Kengoko isiphumo se $11 * (7 * 4)$ si:

- (A) 0 (B) 1 (C) 2 (D) 3 (E) 4

5. Three consecutive even numbers add up to 78. Find the difference between the biggest and the smallest numbers.

5. Drie opeenvolgende ewe getalle bymekaargetel is 78. Vind die verskil tussen die grootste en die kleinste getal.

5. Amanani amathathu alandelelanayo ahluleka ngesibini kungabikho ntsalela kuthi xa edityanisiwe enze ama 78. Fumana ukuba singubani na isiphumo xa kuthe kwathatyathwa elona lincinci kwelona likhulu.

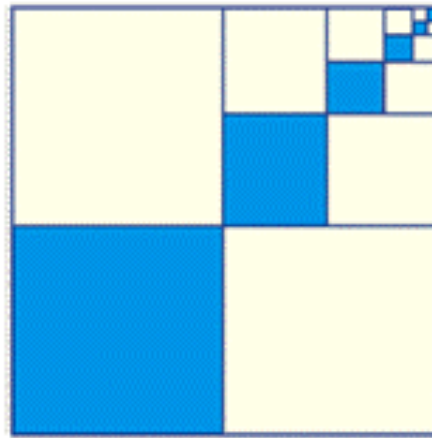
- (A) 2 (B) 4 (C) 24 (D) 25 (E) 26

6. Abdul's bakery bakes white bread, wholemeal bread and rye bread. They come in round loaves and square loaves and have either poppy seeds or sesame seeds sprinkled on the top. How many different kinds of loaves are there to choose from?
- (A) 3 (B) 7 (C) 8 (D) 12 (E) 15
6. Umzi wokubhaka ka Abdul ubhaka isonka esimhlophe, esengqolowa kunye nesonka esibizwa ngokuba yi rye. Zithi zivele zizizangqa okanye zizizikwere ziqatywe ngembewu ze popi okanye eze sesame ngaphezulu. Zingaphi indidi ezahlukeneyo ezingavela ngazo ezi zonka umntu othengayo angakhetha kuzo?

7. A large square is divided into smaller square regions. What fraction of the large square is shaded?

7. 'n Groot vierkant is opverdeel in kleiner vierkante. Watter breuk van die groot vierkant is verdonker?

7. Isikwere esikhulu sohluliwe senziwa ingingqi zezikwere ezincinci. Ingaba liqhezu elingananani kengoko elithe lenziwa mnyama?



(A) $\frac{1}{8}$

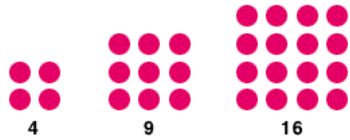
(B) $\frac{6}{32}$

(C) 16

(D) $\frac{171}{512}$

(E) $\frac{2}{3}$

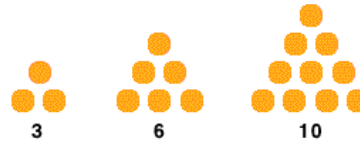
8. Numbers whose arrays form squares are called *square numbers*. Numbers whose arrays form triangles are called *triangular numbers*. Which square number less than 100 is also a triangular number?



(A) 25

(B) 36

8. Getalle wat se patrone vierkante form word vierkantsyfers genoem. getalle wat se patrone driehoeke form word driehoeksyfers genoem. watter vierkantsyfer is kleiner as 100 maar ook n driehoeksyfer?



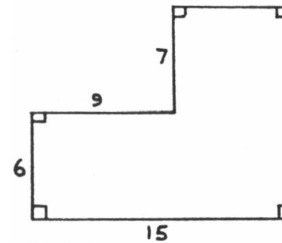
(C) 49

(D) 64

8. Amanani amelwe ngamachokoza akhupha isikwere abizwa ngokuba ngamanani azizikwere. Amanani amelwe ngamachokoza akhupha oonxantathu abizwa ngokuba ngamanani angonxantathu. Leliphi inani elingaphantsi kwe 100 elisisikwere liphinde libe ngunxantathu?

(E) 81

9. In the diagram, the lengths of the sides are as shown. The perimeter of the figure is:



(A) 195

(B) 56

9. In die figuur is die lengtes van die sye soos aangetoon. Die omtrek van die figuur is:

(C) 50

(D) 28

9. Kulo mzobo, ubude bamacala bunjengokuba bubonisiwe. Ubude bawo onke lamacala bungakanani?

(E) 37

10. A number N is doubled and then increased by 5. When this quantity is doubled, the result is 38. The value of N is:

(A) 7

(B) 12

10. 'n Getal N word verdubbel en dan met 5 vermeerder. As die getal wat so gekry word weer verdubbel word, is die resultaat die getal 38. Die waarde van N is:

(C) $10\frac{3}{4}$

(D) $14\frac{1}{2}$

10. Inani u N liphindaphindwa kabini lize longezwe ngesi 5. Emva koko isiphumo siyenaso saphindaphindwa kabini, saza isiphumo saba ngama 38. Kengoko inani u N limele eliphi inani?

(E) $8\frac{1}{4}$

11. What is the total number of rectangles (of all sizes) in the diagram?

11. Hoeveel reghoeke (van enige grootte) is daar altesame in die skets ?

11. Zingaphi iingxande ezinobukhulu obahlukeneyo ezifumaneka kulo mzobo?



(A) 9

(B) 12

(C) 18

(D) 20

(E) 24

12. At a meeting, everyone shakes hands exactly once with every other person present. If there are 45 handshakes, then the number of people attending the meeting is:

12. By 'n vergadering skud elkeen presies eenmaal die hand van elke persoon by die vergadering. As daar 45 keer handgeskud is, dan was die aantal persone by die vergadering:

12. Kwintlanganiso, umntu ngamnye usixhawula kanye kuphela isandla somnye umntu okhoyo. Ukuba abantu baxhawulene izihlandlo ezingama 45 zizonke, bangaphi abantu abakhoyo kule ntlanganiso?

(A) 15

(B) 12

(C) 10

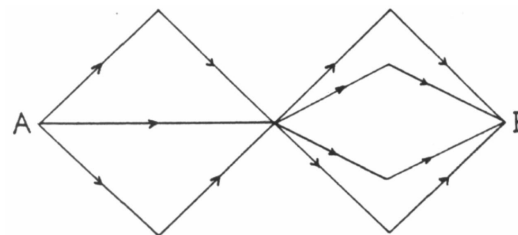
(D) 9

(E) 5

13. How many different routes are there from A to B, moving along the lines in the direction shown by the arrows ?

13. Hoeveel verskillende roetes is daar van A na B, as langs die lyne beweeg word in die rigting deur die pyle aangetoon ?

13. Zingaphi iindlela zokuhamba ezahlukeneyo ezikhoyo ezisukela ku A ziye ku B, zihamba ngokomgaqo oboniswe ngemikhontwana?



(A) 3

(B) 4

(C) 7

(D) 12

(E) 16

14. Linda writes down all the whole numbers from 2 to 21. What percentage of whole numbers on the list are multiples of 4 ?
14. Linda skryf al die heelgetalle vanaf 2 tot 21 neer. Watter persentasie van hierdie heelgetalle is veelvoude van 4 ?
- 14U Linda ubhala onke amanani azeleyo ukusukela kwisi 2 ukuya kuma 21. Ingaba ipesenti yamanani ohluleka ngesi 4 kula ingakanani?

(A) 25

(B) 21

(C) 20

(D) 26

(E) 24

15. M is a number which makes the sentence true:

$$M + M = M \times M$$

How many such numbers are there ?

(A) 0

(B) 1

15. M is 'n getal wat die sin waar maak:

$$M + M = M \times M$$

Hoeveel sulke getalle is daar ?

(C) 2

(D) 3

15. U M linani elithi lenze esi sivakalisi samanani sibe yinyani: $M + M = M \times M$

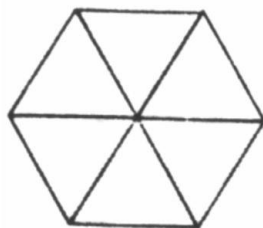
Ingaba mangaphi amanani anjalo akhoyo?

(E) 4

16. A hexagon with all sides equal is divided as shown. The number of quadrilaterals in the figure is:

16. 'n Seshoek met al die sye ewe lank word verdeel soos aangetoon. Die aantal vierhoeke in die figuur is:

16. I hexagoni namacala ayo onke ibonisiwe nendlela eyahlulwe ngayo. Inani lezakhiwo ezinamacala amane zingaphi kulo mzobo?



(A) 4

(B) 6

(C) 8

(D) 10

(E) 12

17. Which of the following numbers is not a prime number?

(A) 17

(B) 37

(C) 47

(D) 57

(E) 97

17. Watter een van die volgende getalle is nie 'n priemgetal nie ?

17. Leliphi kula manani elingeyiyo I prime?

18. A crocodile's tail is 10 ft long. Its body is 11 ft long and its head is one eighth of its total length. What is the length (in feet) of the crocodile?

(A) 21

(B) 22

(C) 23

(D) 24

(E) 29

18. 'n Krokodil se stert is 10 voet lank. Sy lyf is 11 voet lank en sy kop is een agste van sy totale lengte. Wat is die lengte (in voet) van die krokodil?

18 Umsila wengwenya unobude obuzinyawo ezili 10. Umzimba wayo ube nobude obuzinyawo eli 11 ize yona intloko yayo ibe sisibhozo somzimba wayo uwonke. Ingaba ubude bale ngwenya bungakanani (ngokwenyawo)

19. What is 10% of 15% of 20% of R500 ?

(A) R0,30

(B) R1,50

(C) R67,00

(D) R150,00

(E) R225,00

19. Wat is 10% van 15% van 20% van R500 ?

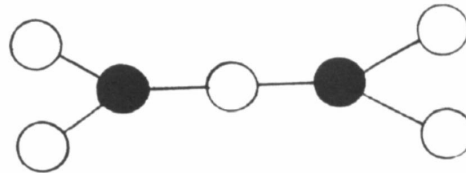
19. Ingaba I 10% ze 15% zama 20% zama R500 zingakanani?

20. A fly lands on one of the 7 circles and then moves, once only, along a path to a neighbouring circle. What is the chance that it will end up on a black circle ?

(A) $\frac{2}{7}$ (B) $\frac{2}{5}$ (C) $\frac{3}{7}$ (D) $\frac{3}{5}$ (E) $\frac{5}{7}$

20. 'n Vlieg gaan sit op een van die 7 sirkels en beweeg dan slegs een keer langs een van die verbindingslyne na 'n sirkel langsaan. Wat is die kans dat dit op 'n swart sirkel sal eindig ?

20. Impukane yathi yehlela kwesinye sezangqa ezisi 7 yaphinda yahamba, kanye kuphela ilandela indlela eya kwisangqa sesibini esisecaleni. Ingaba mangaphi amathuba okuba ingawela kwisangqa esimnyama?



Bonus. Nine bus stops are equally spaced along a bus route. The distance from the first to the third is 600m. How far is it from the first to the ninth ?

Bonus. Nege bushaltes is gelyk gespasiëer op 'n busroete. Die afstand van die eerste tot by die derde is 600 m. Hoe ver is dit van die eerste tot by die negende ?

IBhonasi. Iindawo ema kuzo ibhasi zilithoba kwindlela yayo kwaye ziyimigama elinganayo ukusuka kwenye ukuya kwenye. Umgama ophakathi kweyokuqala ukuya kweyesithathu ungama 600m. Ingaba ungakanani umgama ukusuka kweyokuqala ukuya kweyethoba?

(A) 600m

(B) 1600m

(C) 1800m

(D) 2400m

(E) 2700m
