

The 2002 Living Maths Olympiad

Grade: 6

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 NOT use a calculator.
- We hope you enjoy it!

LET OP ASSEBLIEF:

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

1. Which number is the largest?

- (A) 0,56 (B) $\frac{1}{2}$ (C) 0,0599 (D) 0,09 (E) $\frac{1}{4}$

1. Watter getal is die grootste?

2. The sum of two numbers is 15. Which of the choices below *cannot* be a possible product of these two numbers.

- (A) 54 (B) 50 (C) 26 (D) 45 (E) 36

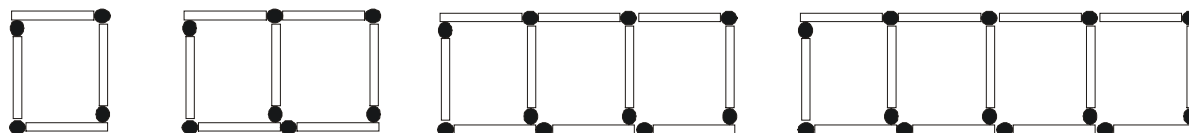
2. Die som van twee getalle is 15. Watter van die volgende keuse kan *nie* die produk van die twee getalle wees nie?

3. Find the 50th number in the sequence
1; 3; 5; 7; 9; 11; 13;.....

- (A) 50 (B) 49 (C) 100 (D) 99 (E) 46

3. Bepaal die 50ste getal in die ry
1; 3; 5; 7; 9; 11; 13;.....

4. Matches are used to make squares as shown. How many matches are needed to make 15 such squares?



- (A) 15 (B) 60 (C) 46 (D) 50 (E) 80

4. Vierkante word met vuurhoutjies gebou soos aangedui. Hoeveel vuurhoutjies word vir 15 sulke vierkante benodig?

5. If a 3 $\frac{1}{2}$ hour test starts at 8:42 am, it would then finish at

- (A) 12:12 pm/nm (B) 12:42 pm/nm (C) 11:12 am/vm (D) 12:02 pm/nm (E) 11:32 am/vm

5. As 'n 3 $\frac{1}{2}$ uur toets begin om 8:42 vm dan behoort dit te eindig om

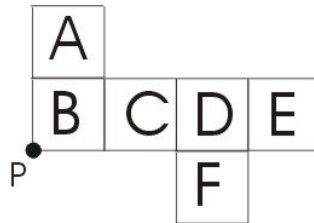
6. The magic square below uses the numbers 1-9 once each. The columns, rows and main diagonals each add up to 15. Calculate X.

	1	6
X		

- (A) 4 (B) 3 (C) 7 (D) 9 (E) 2

6. Die towervierkant hieronder gebruik die getalle 1-9 elk een is een keer gebruik. Die som van die getalle in elke ry, in elke kolom en in elke skuinslyn is gelyk aan 15. Bepaal X.

7. The net shown below is folded to form a cube. Which three faces will meet at P?



- (A) A,B and/en C (B) B,D and/en F (C) D,E and/en F (D) A,B and/en E (E) B,E and/en F

7. Die net hierdonder getoon word gevou om 'n kubus te vorm. Watter drie syvlakke ontmoet by P?

8. Pangel's restaurant is advertising their latest special: For R40, get a starter, main course and dessert. How many different types of special does the restaurant serve?

8. Pangel se restaurant adverteer hul nuutste spesiale aanbieding: Vir R40 kry jy 'n aansitter, hoofmaal en nagereg. Hoeveel verskillende tipes van hierdie spesiale maaltyd bied die restaurant aan?

<p>MENU <u>Starters/Aansitters</u> Salad/slaai Soup/sop Mushrooms/sampioene</p> <p><u>Main/Hoofmaal</u> Chicken/Hoender Fish/Vis Pasta</p> <p><u>Dessert/Nagereg</u> Ice cream/roomys Fruit Salad/vrugteslaai</p>

- (A) 9 (B) 18 (C) 14 (D) 21 (E) 36

9. Dice are made so that the sum of the two numbers on opposite faces is 7. The sum of five visible numbers on a die lying on a table, is 17. What number is on top?

- (A) 1 (B) 2 (C) 3 (D) 5 (E) 4

9. Dobbelstene word so gemaak dat die som van die twee getalle op teenoorstaande vlakke 7 is. Die som van die vyf sigbare syfers van 'n dobbelsteen wat op 'n tafel lê, is 17. Watter getal wys boontoe?

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



- (A) 4 (B) 5 (C) 7 (D) 8 (E) 9

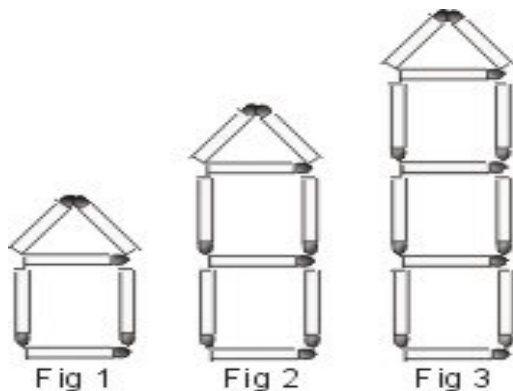
10. Hoeveel reghoeke (van enige grootte) is daar altesame in die skets?

11. If $8 \# 2 = 8 + 2 \times 8 - 2$, calculate $3 \# 4$

- (A) 11 (B) 78 (C) 20 (D) 17 (E) 45

11. As $8 \# 2 = 8 + 2 \times 8 - 2$, bepaal $3 \# 4$

12. Figure 1 is made up of 6 matches. Figure 2 is made up of 9 matches. Figure 3 is made up of 12 matches. How many matches will be needed for figure 7?



- (A) 24 (B) 20 (C) 18 (D) 16 (E) 13

12. Figuur 1 bestaan uit 6 vuurhoutjies. Figuur 2 bestaan uit 9 vuurhoutjies. Figuur 3 bestaan uit 12 vuurhoutjies. Hoeveel vuurhoutjies sal nodig wees vir figuur 7?

13. Steffi Piek's initials are SP and Arnold Sela's initials are AS. If a company wishes to make ties with every possible pair of initials, how many different kinds of ties must be made?

- (A) 52 (B) 26 (C) 676 (D) 576 (E) 100

13. Steffi Piek se voorletters is SP en Arnold Sela se voorletters is AS. As 'n maatskappy dasse wil maak met alle moontlike pare voorletters, hoeveel verskillende soorte dasse moet hulle maak?

14. After $\frac{1}{9}$ of a rope was cut off, 56cm still remained. What length of the rope was cut off ?



- (A) 3cm (B) 5cm (C) 7cm

14. Nadat ek $\frac{1}{9}$ van 'n stuk tou afgesny het, was daar 56cm oor. Watter lengte tou was afgesny?



- (D) 9cm (E) 63 cm

15. In England, the mile and not the kilometre, is used as a unit for distance. In South Africa the speed limit in urban areas is 60km/h. What is the corresponding speed in England in miles per hour?

(1km = $\frac{5}{8}$ mile)

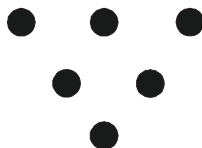
- (A) 40 (B) 100 (C) 96

15. In Engeland gebruik mense die myl in plaas van die kilometer as 'n eenheid vir afstand. In Suid-Afrika is die spoedbeperking in stedelike gebiede 60km/h. Wat sal die ooreenstemmende spoed in Engeland in myl per uur wees? (1km = $\frac{5}{8}$ myl)

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- (D) 37,5 (E) 52

16. How many triangles can be drawn by joining any three of these points at a time?



- (A) 5 (B) 8 (C) 12

16. Hoeveel driehoeke kan getrek word deur enige drie van die punte te verbind?

- (D) 15 (E) 17

17. What fraction of a day (24hr) is 180 minutes?

- (A) $\frac{1}{2}$ (B) $\frac{1}{8}$ (C) $\frac{2}{5}$

17. Watter breuk is 180 minute van 'n dag(24 uur)?

- (D) $\frac{9}{20}$ (E) $\frac{10}{18}$

18. If $P\uparrow$ and $P\downarrow$ are defined by the equations

$$P\uparrow = P + 1$$

$$P\downarrow = P - 1$$

Then $(4\uparrow) \times (3\downarrow)$ is equal to which of the following?

- (A) $9\downarrow$ (B) $10\uparrow$ (C) $11\downarrow$

18. As $P\uparrow$ en $P\downarrow$ gedefinieer word deur die vergelykings

$$P\uparrow = P + 1$$

$$P\downarrow = P - 1$$

Aan watter een van die volgende is $(4\uparrow) \times (3\downarrow)$ gelyk?

- (D) $12\uparrow$ (E) $13\downarrow$

19. Find the value of $a + b + c + d$ if

$$a \times b = 20$$

$$b \times d = 35$$

$$d \times c = 42$$

$$c \times b = 30$$

- (A) 31 (B) 16 (C) 33

19. Bepaal die waarde van $a + b + c + d$ as

$$a \times b = 20$$

$$b \times d = 35$$

$$d \times c = 42$$

$$c \times b = 30$$

- (D) 22 (E) 64

<p>20. A double-decker bus has four times as many passengers seated upstairs as downstairs. If one person goes downstairs, there will be three times as many people upstairs as there are downstairs. How many people are in the bus altogether?</p> <p>(A) 20 (B) 18 (C) 15 (D) 12 (E) 30</p>	<p>20. 'n Dubbeldek bus het vier keer soveel passasiers op die boonste dek as onder. As een persoon van die boonste na die onderste dek gaan, is daar drie keer soveel mense bo as onder. Hoeveel passasiers is daar altesaam in die bus?</p> <p>(A) 20 (B) 18 (C) 15 (D) 12 (E) 30</p>
<p>21. In Samuel's school, there are 6 boys for every 7 girls. How many boys are there if there are 168 girls?</p> <p>(A) 130 (B) 144 (C) 189 (D) 125 (E) 161</p>	<p>21. In Samuel se skool, is daar 7 meisies vir elke 6 seuns. Hoeveel seuns is daar in die skool as daar 168 meisies is?</p> <p>(A) 130 (B) 144 (C) 189 (D) 125 (E) 161</p>
<p>22. If Q is a number which makes the sentence below true: $Q + Q = Q \times Q$ How many such numbers for q are there?</p> <p>(A) 4 (B) 3 (C) 2 (D) 1 (E) 0</p>	<p>22. As Q 'n getal is wat die sin hieronder waar maak: $Q + Q = Q \times Q$ Hoeveel sulke getalle vir Q is daar?</p> <p>(A) 4 (B) 3 (C) 2 (D) 1 (E) 0</p>
<p>23. If $W = 64 \times 63 \times 62 \times 61 \times \dots \times 3 \times 2 \times 1$, which of the following choices is NOT a factor of W?</p> <p>(A) 69 (B) 68 (C) 67 (D) 66 (E) 65</p>	<p>23. As $W = 64 \times 63 \times 62 \times 61 \times \dots \times 3 \times 2 \times 1$, watter van die volgende keuses is NIE 'n factor van W nie?</p> <p>(A) 69 (B) 68 (C) 67 (D) 66 (E) 65</p>
<p>24. The three taps at a swimming pool run at different flow rates. Tap A can fill the pool in 30 min on its own, tap B in 20 min and tap C in 12 min. How long will it take to fill the pool if all three taps are open without any reduction in pressure?</p> <p>(A) 10 min (B) 6 min (C) 8 min (D) 4 min (E) 62 min</p>	<p>24. Die drie kraane by 'n swembad loop teen verskillende tempo's. Kraan A vul die bad op sy eie in 30 min, kraan B in 20 min en kraan C in 12 min. Hoe lank sal dit duur om die swembad te vul as al drie kraane, sonder drukverlies, gelyktydig loop?</p> <p>(A) 10 min (B) 6 min (C) 8 min (D) 4 min (E) 62 min</p>
<p>25. At Jaidon's and Samuel's soccer match, the final score was 2-3, but we do not know the half-time score. How many different half-time scores were possible?</p> <p>(A) 4 (B) 6 (C) 8 (D) 10 (E) 12</p>	<p>25. By Jaidon en Samuel se sokkerwedstryd was die eindtelling 2-3, maar die rustydteelling is onbekend. Hoeveel verskillende rustydteellings was moontlik?</p> <p>(A) 4 (B) 6 (C) 8 (D) 10 (E) 12</p>



Papers set by Steve Sherman and translated by Wilhelm Jonker