

Jet SA Mathematics Challenge

GRADE 6 FINAL ROUND
5 SEPTEMBER 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!

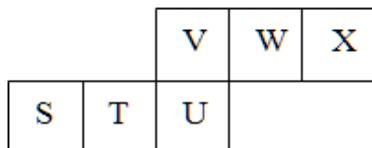
Jet SA Wiskunde-uitdaging

GRAAD 6 FINALE RONDE
5 SEPTEMBER 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 tydwendend.
- Ons hoop jy geniet dit!

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1. If the figure shown is folded to make a cube, then what is the letter opposite the T?



- (A) S (B) U (C) V (D) W (E) X

2. What number is exactly halfway between 5,6 and 5,65?

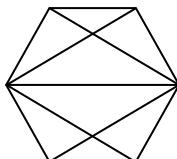
- (A) 5,025 (B) 5,625 (C) $5,62\frac{1}{2}$ (D) 5,605 (E) 5,655

3. Which one of these is *not* true?

- (A) $(1+1)\div(1+1)=1$ (B) $2\div2+2\div2=2$ (C) $3\times3-3+3=3$ (D) $(4-4)\times4+4=4$ (E) $5+5\times(5-5)=5$

4. How many different triangles (of all sizes) are in this figure?

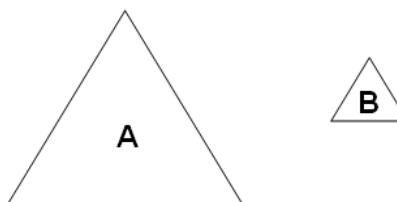
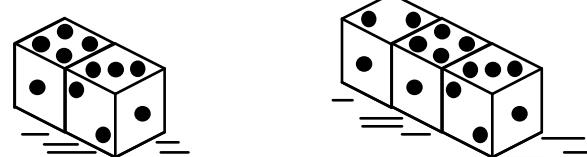
3. Watter een hiervan is *nie* waar nie?
4. Hoeveel verskillende driehoekte (van alle groottes) is daar in hierdie figuur?

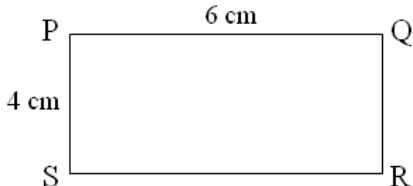


- (A) 8 (B) 10 (C) 12 (D) 14 (E) 16

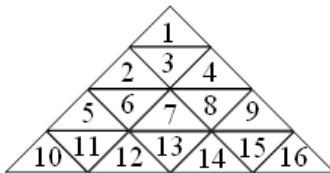
5. How many whole numbers divide exactly into 100?

- (A) 8 (B) 6 (C) 7 (D) 10 (E) 9

6. Which of the following divisions has the smallest remainder?
 (A) $4002 \div 4$ (B) $503 \div 5$ (C) $604 \div 6$ (D) $75 \div 7$ (E) $8883 \div 8$
7. A side of the equilateral triangle A is three times the length of a side of equilateral triangle B. How many triangles B will fit into triangle A?
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- (A) 9 (B) 3 (C) 6 (D) 10 (E) 12
8. Which of the following is a fraction between $\frac{5}{6}$ and $\frac{7}{8}$?
 (A) $\frac{4}{5}$ (B) $\frac{18}{22}$ (C) $\frac{41}{48}$ (D) $\frac{8}{9}$ (E) $\frac{5}{7}$
9. If we place dice side by side in a row on a table, only some of the faces are visible: With 2 dice in the row 8 faces are visible; with 3 dice in the row 11 faces are visible, etc. If 50 faces are visible, how many dice are there in the row?
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- (A) 12 (B) 13 (C) 14 (D) 15 (E) 16
10. A magic substance is placed in a container, where it doubles in quantity every minute. If the container is full after one hour, after how many minutes was it half-full?
 (A) 30 (B) 59 (C) 15 (D) 2 (E) 0,5
11. Which of the following fractions is closest to $\frac{2}{5}$?
 (A) $\frac{399}{1000}$ (B) $\frac{199}{500}$ (C) $\frac{41}{100}$ (D) $\frac{21}{50}$ (E) $\frac{3}{10}$
12. The table represents the relationship between x and y . What is the missing number in the table?
- | x | y |
|-----|-----|
| 2 | 3 |
| 3 | 5 |
| 4 | ? |
| 6 | 17 |
- (A) 6 (B) 7 (C) 8 (D) 9 (E) 10
6. Watter van die volgende deelprobleme het die kleinste res?
 7. 'n Sy van gelyksydige driehoek A is drie keer so lank as 'n sy van gelyksydige driehoek B. Hoeveel driehoekies B sal in driehoek A inpas?

13. A book and a CD together cost R230. If the CD costs R60 more than the book, how much does the book cost?
 (A) R80 (B) R115 (C) R110 (D) R170 (E) R85
14. Which of these fractions is the largest?
 (A) $\frac{7}{15}$ (B) $\frac{8}{17}$ (C) $\frac{11}{23}$ (D) $\frac{13}{27}$ (E) $\frac{5}{11}$
15. Three consecutive numbers (E.G. 7, 8, 9) are multiplied together and the answer is 3360. What is the sum of the three numbers?
 (A) 45 (B) 40 (C) 65 (D) 80 (E) 29
16. Jane eats twice as many sweets as Sue in half the time. Sue eats 12 sweets in 10 minutes. How many sweets does Jane eat in the same time?
 (A) 60 (B) 12 (C) 48 (D) 24 (E) 60
17. Jackie interviewed 50 6th graders about their TV preferences. 41 said they like comedy, 35 said they enjoy action films and 30 said they like both. How many of the learners like neither?
 (A) 11 (B) 20 (C) 0 (D) 4 (E) 9
18. $2000 - 1999 + 1998 - 1997 + \dots + 2 - 1 =$
 (A) 2000 (B) 1999 (C) 1000 (D) 0 (E) 1
19. There are a total of seven bicycles and tricycles altogether in the shop window. They have a total of 19 wheels. How many bicycles are there?
 (A) 4 (B) 2 (C) 3 (D) 7 (E) 5
20. You want to enlarge the rectangle in the figure so that the side PS is 6 cm long. How long will side PQ be in the enlargement?
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- (A) 7 cm (B) 8 cm (C) 9 cm (D) 10 cm (E) 12 cm
21. A palindrome is a whole number that reads the same forwards or backwards (e.g. 4774). How many palindromes are there between 10 and 500?
 (A) 40 (B) 49 (C) 45 (D) 36 (E) None of these
 Nie een hiervan nie
13. 'n Boek en 'n CD saam kos R230. As die CD R60 meer kos as die boek, hoeveel kos die boek?
14. Watter van hierdie breuke is die grootste?
15. Drie opeenvolgende getalle (bv. 7, 8, 9) word met mekaar vermenigvuldig en die antwoord is 3360. Wat is die som van die drie getalle?
16. Jane eet twee keer soveel lekkers as Sue in helfte van die tyd. Sue eet 12 lekkers in 10 minute. Hoeveel lekkers eet Jane in dieselfde tyd?
17. Jackie het 50 graad 6-leerders ondervra oor hul TV voorkeure. 41 sê hulle hou van komedies, 35 sê hulle geniet aksieflikks en 30 sê hulle hou van beide. Hoeveel van die leerders hou nie van een van die twee nie?
18. $2000 - 1999 + 1998 - 1997 + \dots + 2 - 1 =$
19. By 'n fietsinkel staan daar altesaam sewe fietse en driewiele. Hulle het altesaam 19 wiele. Hoeveel fietse is daar?
20. Jy wil die reghoek in die figuur vergroot sodat die sy PS 6 cm lank is. Hoe lank sal die sy PQ in die vergroting wees?

22. This big triangle below has four rows. There is one small triangle in the first row, three in the second row and five in the third row. If such a triangle has 50 rows, how many small triangles are there in the 50th row?



22. Die groot driehoek hieronder het vier rye. Daar is een klein driehoekie in die eerste ry, drie in die tweede ry en vyf in die derde ry. As so 'n driehoek 50 rye het, hoeveel driehoekies is in die 50ste ry?

(A) 99

(B) 101

(C) 51

(D) 151

(E) 150

23. Refer to question 22. In such a big triangle with 50 rows, how many small triangles are there altogether?

(A) 2450

(B) 2500

(C) 99

(D) 2000

(E) 2550

24. Refer to question 22. The last number in the fourth row is 16. If the pattern is continued, what will the last number in the 15th row be?

(A) 100

(B) 190

(C) 202

(D) 225

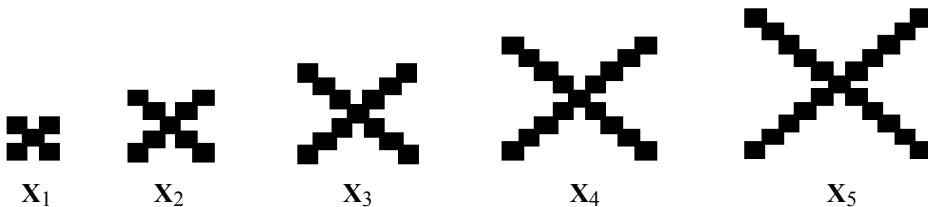
(E) 250

25. Sipho uses tiles to build crosses as shown below. How many tiles will he use for X_{50} ?

23. Verwys na vraag 22. Hoeveel klein driehoekies is daar altesaam in so 'n groot driehoek met 50 rye?

24. Verwys na vraag 22. Die laaste getal in die vierde ry is 16. As die patroon voortgesit word, wat sal die laaste getal in die 15de ry wees?

25. Sipho bou kruise met teëls soos hieronder. Hoeveel teëls sal hy gebruik vir X_{50} ?



(A) 202

(B) 201

(C) 200

(D) 210

(E) None of these
Nie een hiervan nie