

Mathematics Challenge

GRADE 5 FIRST ROUND

AUGUST 2010

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!

Wiskunde-uitdaging

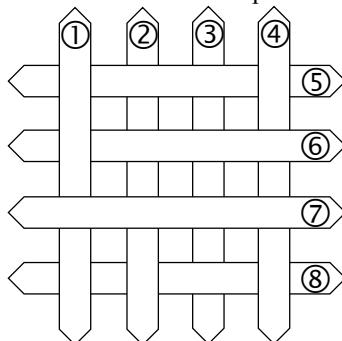
GRAAD 5 EERSTE RONDE

AUGUSTUS 2010

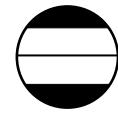
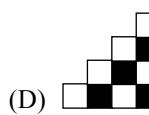
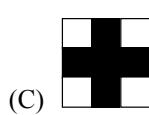
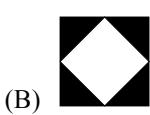
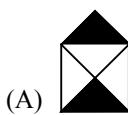
LET OP:

- Beantwoord die vrae volgens die instruksies op die antwoordblad.
- Jy mag 'n sakrekenaar gebruik.
- Die vrae toets insig. Omslagtige berekeninge is dus onnodig en tydwend.
- Ons hoop jy geniet dit!

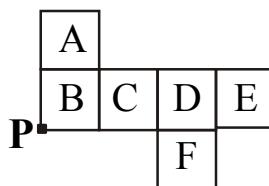
1. The sketch shows eight lolly sticks. If you must pick up the top one each time, in what order will you pick them up?



- (A) 7,6,4,1,8,2,3,5 (B) 7,6,5,4,8,1,2,3 (C) 7,1,6,4,5,2,8,3 (D) 7,1,4,5,6,2,8,3 (E) 7,1,6,2,4,5,8,3
2. In which one of the following is half of the figure shaded?



3. The net below must be folded to form a cube. Which three faces will meet at P?



- (A) B E F (B) A B C (C) B D F (D) A B E (E) A B F
4. A train departs from Bellville station at 09:47 and arrives in Cape Town at 10:18. Another train on the same route leaves Bellville at 12:30. At what time does it arrive in Cape Town?

- (A) 13:18 (B) 13:01 (C) 01:01

3. Die net hieronder moet gevou word om 'n kubus te vorm. Watter drie sykante sal by P ontmoet?

4. 'n Trein vertrek om 09:47 van Bellville-stasie en kom om 10:18 in Kaapstad aan. 'n Ander trein op dieselfde roete vertrek om 12:30 van Bellville. Hoe laat kom dit in Kaapstad aan?

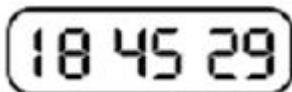
- (D) 13:12 (E) 12:51

5. If you begin with a certain one-digit number, multiply it by 3, then add 8, then divide by 2 and then subtract 6, you will get the original number as answer. What is the number?
- (A) 2 (B) 8 (C) 6 (D) 5 (E) 4
6. At a fun fair an ice-cream vendor sells 25 cones, which is 12 less than he sold yesterday. How many did he sell yesterday?
- (A) 13 (B) 37 (C) 24 (D) 50 (E) None of these
Nie een hiervan nie
7. Calculate:

$$2 - 1 + 3 - 2 + 4 - 3 + 5 - 4 + 6 - 5 + \dots + 101 - 100$$
- (A) 99 (B) 100 (C) 101 (D) 102 (E) 201
8. You and your friend have the same amount of money. How much should you give her so that she has R10 more than you?
- (A) R15 (B) R10 (C) R20 (D) R5 (E) None of these
Nie een hiervan nie
9. Hailey is reading a book. Chapter 7 begins on page 246 and ends on page 274. How many pages are there in chapter 7?
- (A) 274 (B) 28 (C) 15 (D) 29 (E) 30
10. Rectangles with sides 3 cm and 1 cm are used to make the figure below. How far is it once around the figure?
- (A) 24 cm (B) 48 cm (C) 26 cm (D) 14 cm (E) 32 cm
11. Thomas forgot to take off his shoes when he got onto the scale to weigh himself. The scale showed 41 kg. He then weighed his two shoes and found that they had a mass of 725 g. What was his mass without his shoes?
- (A) 40,175 g (B) 40,725 kg (C) 39,275 kg (D) 41,725 kg (E) 40,275 kg
12. A factory manufactures dresses and shirts:
 3 dresses are manufactured for every 4 shirts. In a week the factory produced a total of 420 dresses and shirts. How many of these were dresses?
- (A) 180 (B) 240 (C) 140 (D) 315 (E) 120
5. As jy begin met 'n sekere eensyfer-getal, dit vermening-vuldig met 3, dan 8 bytel, dan deel deur 2 en dan 6 aftrek, sal jy die oorspronklike getal as antwoord kry. Wat is die getal?
6. By 'n kermis verkoop 'n roomyswaentjie 25 roomyse, wat 12 minder is as wat hy gister verkoop het. Hoeveel roomyse het hy gister verkoop?
7. Bereken:

$$2 - 1 + 3 - 2 + 4 - 3 + 5 - 4 + 6 - 5 + \dots + 101 - 100$$
8. Jy en jou maat het ewe veel geld. Hoeveel moet jy haar gee sodat sy R10 meer as jy het?
9. Hailey lees 'n boek. Hoofstuk 7 begin op bladsy 246 en eindig op bladsy 274. Hoeveel bladsye is daar in hoofstuk 7?
10. Reghoeke met sny 3 cm en 1 cm word gebruik om die onderstaande figuur te vorm. Hoe ver is dit een keer rondom die figuur?
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13. On a digital clock displaying hours, minutes and seconds, how many times in each 24-hour period do all six digits change simultaneously?



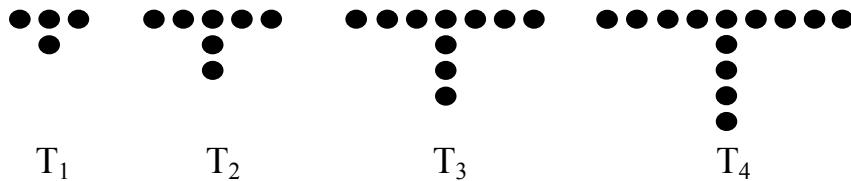
(A) 0 (B) 1 (C) 2 (D) 3 (E) 24

14. I choose three numbers from this number square – one number from each row and one number from each column. Then I multiply the three numbers. What is the largest possible product?

1	2	3
4	5	6
7	8	9

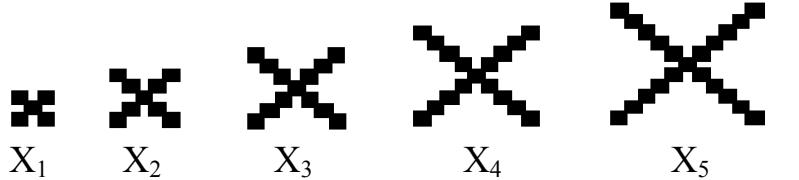
(A) 72 (B) 96 (C) 105 (D) 162 (E) 504

15. Sipho uses dots to build T-shapes as shown below. How many dots will he use for T_{50} ?



(A) 101 (B) 201 (C) 500 (D) 151 (E) 501

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



(A) 202 (B) 201 (C) 200 (D) 210 (E) 212

17. Sally counts like this: 6, 10, 14, 18, 22, 26, 30, ... What is the 100th number she will count?



(A) 602 (B) 402 (C) 403 (D) 404 (E) 405

18. If Sally continues to count like this, which of these numbers will she count?

(A) 8372 (B) 9756 (C) 9676 (D) 7952 (E) 7578

13. Op 'n digitale horlosie wat ure, minute en sekondes vertoon, hoeveel keer in elke 24-uur tydperk verander al ses syfers gelykydig?

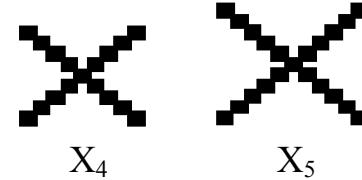


14. Ek kies drie getalle uit hierdie getalvierkant – een getal uit elke ry en een getal uit elke kolom. Dan vermenigvuldig ek die drie getalle. Wat is die grootste moontlike produk?

1	2	3
4	5	6
7	8	9

15. Sipho bou T-vorms met kolletjies soos hieronder. Hoeveel kolletjies sal hy gebruik vir T_{50} ?

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



(A) 202 (B) 201 (C) 200 (D) 210 (E) 212

17. Sally tel so: 6, 10, 14, 18, 22, 26, 30, ... Wat is die 100^{ste} getal wat sy sal tel?

6, 10, 14, 18, 22,

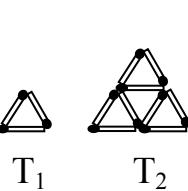
18. As Sally voortgaan om so te tel, watter van hierdie getalle sal sy tel?

(A) 8372 (B) 9756 (C) 9676 (D) 7952 (E) 7578

19. Vusi builds a sequence of triangular patterns with matches as shown. In T_1 there is one triangle and in T_2 there are four triangles. How many triangles are there in T_{10} ?

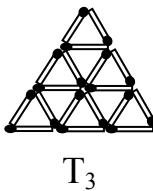
(A) 30

(B) 60



(C) 100

19. Vusi bou 'n ry driehoekpatrone met vuurhoutjies soos hieronder. In T_1 is daar een driehoek. In T_2 is daar vier driehoeke. Hoeveel driehoeke is daar in T_{10} ?



(D) 120

(E) 121

20. In question 19, T_1 has three matches and T_2 has 9 matches. How many matches does Sipho need to build pattern T_{10} ?

(A) 150

(B) 180

(C) 135

21. The desks in a classroom are arranged in straight rows with the same number of desks in each row. Unless someone is absent, each desk is filled. Masaki is in the second row from the front and the fourth row from the back. She is also the third learner from the left end of the row and the fifth learner from the right. How many learners are in the class?

(A) 48

(B) 35

(C) 30

(D) 24

(E) 42

22. A, B, C, D, E and F are six towns situated as follows:

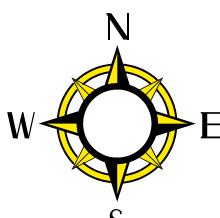
D is 30 km East of F
B is 20 km West of C
A is 10 km West of E
F is 10 km South of A
D is 20 km North of C

How far is B from E?

(A) 30 km

(B) 20 km

(C) 10 km



20. In vraag 19 : T_1 het drie vuurhoutjies en T_2 het 9 vuurhoutjies. Hoeveel vuurhoutjies het Sipho nodig om T_{10} te bou?

(D) 165

(E) 300

21. Die banke in 'n klaskamer staan in ewe lang reguit rye. Behalwe as iemand afwesig is, is al die banke gevul. Masaki sit in die tweede ry van voor af en in die vierde ry van agter af. Sy is ook die derde leerling van links af en die vyfde leerling van regs af. Hoeveel leerlinge is daar in die klas?

(D) 24

(E) 42

22. Ses dorpe A, B, C, D, E en F is soos volg geleë:

D is 30 km Oos van F
B is 20 km Wes van C
A is 10 km Wes van E
F is 10 km Suid van A
D is 20 km Noord van C

Hoe ver is B van E?

(D) 40 km

(E) 50 km

23. Jackie has four cards (see below). How many different two-digit numbers can she make with these cards?



(A) 8

(B) 12

(C) 16

(D) 18

(E) 24

23. Jackie het vier kaarte (sien hieronder). Hoeveel verskillende tweesyfer-getalle kan sy met hierdie kaarte maak?

24. In question 23: How many different three-digit numbers can Jackie make with these cards?

(A) 8

(B) 12

(C) 16

(D) 18

(E) 24

24. In vraag 23: Hoeveel verskillende driesyfer-getalle kan Jackie met hierdie kaarte maak?

25. Peter, Tom, Robert and Debbie are standing in a queue at the Post Office counter. If Peter leaves, Tom is in the second place. If Debbie leaves, Peter is first in the queue. Who is fourth in the queue?

(A) Robert

(B) Peter

(C) Debbie

(D) Tom

(E) Not enough information
Nie genoeg inligting nie

25. Peter, Tom, Robert en Debbie staan in 'n tou by 'n toonbank in die Poskantoor. As Peter loop, is Tom in die tweede plek. As Debbie loop, is Peter voor in die tou. Wie is vierde in die tou?