

# Mathematics Challenge

## GRADE 5 FINAL ROUND

### 14 OCTOBER 2009

#### 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

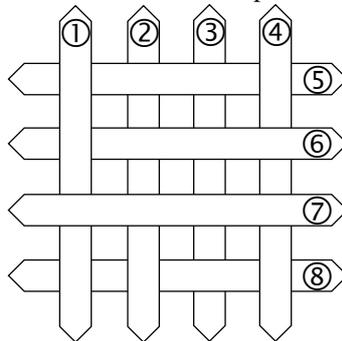
## GRAAD 5 FINALE RONDE

### 14 OKTOBER 2009

#### LET OP:

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

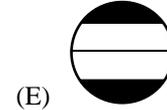
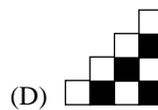
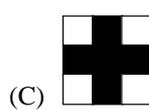
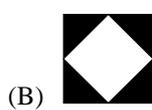
1. The sketch shows eight lolly sticks. If you must pick up the top one each time, in what order will you pick them up?



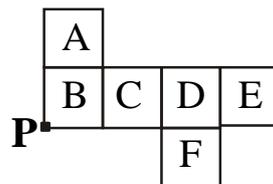
1. Die skets toon agt roomysstokkies. As jy elke keer die boonste een moet optel, in watter volgorde sal jy hulle optel?

- (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

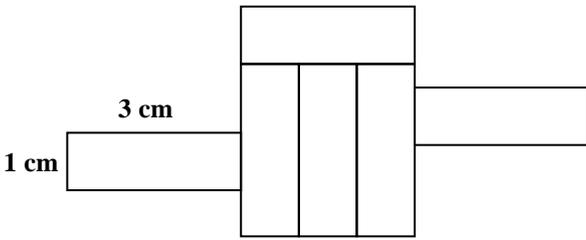
4. A train departs from Bellville station at 09:47 and arrives in Cape Town at 10:18. Another train on the same route leaves Bellville at 12:30. At what time does it arrive in Cape Town?

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

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?

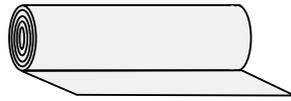
- (D) 13:12 (E) 12:51



- 
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. In an election 39 218 votes were cast for two candidates. The winner had 1 002 votes more than the loser. How many votes did the winner receive?
- (A) 19 108                      (B) 20 182                      (C) 38 216                      (D) 20 110                      (E) 19 609
- 
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 vermenigvuldig 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?
- (A) 2                      (B) 8                      (C) 6                      (D) 5                      (E) 4
- 
6. In 'n verkiesing is 39 218 stemme uitgebring vir twee kandidate. Die wenner het 1 002 stemme meer as die verloorde gekry. Hoeveel stemme het die wenner gekry?
- (A) 19 108                      (B) 20 182                      (C) 38 216                      (D) 20 110                      (E) 19 609
- 
7. Bereken:  
 $2 - 1 + 3 - 2 + 4 - 3 + 5 - 4 + 6 - 5 + \dots + 101 - 100$
- (A) 99                      (B) 100                      (C) 101                      (D) 102                      (E) 201
- 
8. Jy en jou maat het ewe veel geld. Hoeveel moet jy haar gee sodat sy R10 meer as jy het?
- (A) R15                      (B) R10                      (C) R20                      (D) R5                      (E) None of these  
 Nie een hiervan nie
- 
9. Hailey lees 'n boek. Hoofstuk 7 begin op bladsy 246 en eindig op bladsy 274. Hoeveel bladsye is daar in hoofstuk 7?
- (A) 274                      (B) 28                      (C) 15                      (D) 29                      (E) 30
- 
10. Reghoëke met sye 3 cm en 1 cm word gebruik om die onderstaande figuur te vorm. Hoe ver is dit een keer rondom die figuur?

13. After one-tenth of a roll of material was cut off, 99 m of material remains on the roll. How long was the original roll of material?

13. Na een tiende van 'n rol materiaal afgesny is, bly daar 99 m materiaal oor. Hoe lank was die oorspronklike rol materiaal?



- (A) 90 m      (B) 100 m      (C) 110 m      (D) 108 m      (E) None of these  
Nie een hiervan nie

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?

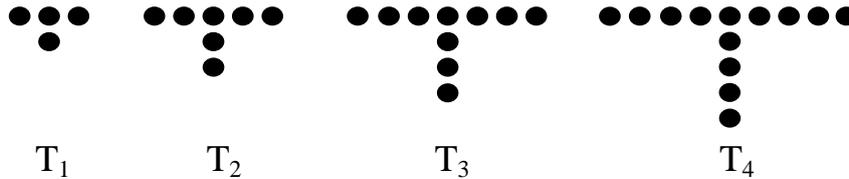
14. Ek kies drie getalle uit hierdie getalvierkant – een getal uit elke ry en een getal uit elke kolom. Dan vermenigvuldig ek die drie getalle. Wat is die grootste moontlike produk?

1	2	3
4	5	6
7	8	9

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

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

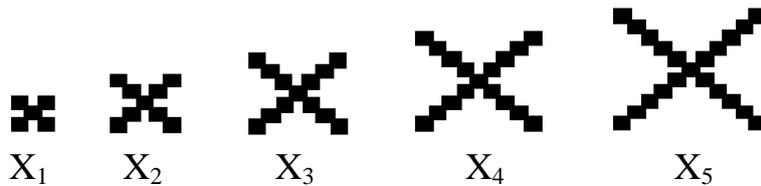
15. Siphso bou T-vorms met kolletjies soos hieronder. Hoeveel kolletjies sal hy gebruik vir  $T_{50}$ ?



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

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

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



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

17. You have ten blue socks, ten red socks and ten brown socks all mixed up in a drawer in a dark room. How many socks must you take from the drawer to be *sure* that you have a pair of the same colour?

17. Jy het tien blou sokkies, tien rooi sokkies en tien bruin sokkies wat deurmekaar in 'n laai in 'n donker kamer lê. Hoeveel sokkies moet jy uit die laai uithaal om *seker* te wees dat jy 'n paar van dieselfde kleur sal hê?

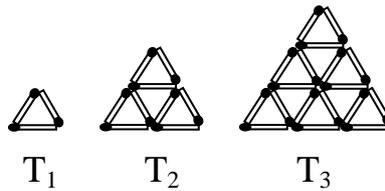
- (A) 11      (B) 20      (C) 21      (D) 4      (E) 22

18. Refer to the previous question. How many socks must you take from the drawer to be *sure* that you have a pair of blue socks?

18. Verwys na die vorige vraag. Hoeveel sokkies moet jy uit die laai haal om *seker* te wees dat jy 'n paar blou sokkies het?

- (A) 11      (B) 20      (C) 21      (D) 4      (E) 22

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                      (D) 120                      (E) 121

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

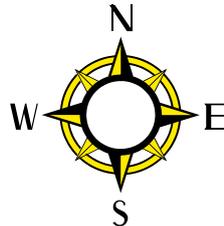
- (A) 150                      (B) 180                      (C) 135                      (D) 165                      (E) 300

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                      (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

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

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

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  $T_{10}$ ?

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

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?

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?

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

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

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?

- (D) Tom                      (E) Not enough information  
Nie genoeg inligting nie