Mathematics Challenge

GRADE 4 FINAL ROUND
13 OCTOBER 2008

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 4 FINALE RONDE
13 OKTOBER 2008

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 tydrowend.
- Ons hoop jy geniet dit!

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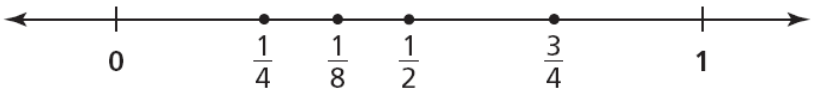
1. Which fraction on the number line below is in the *wrong* place?

1. Watter breuk op die getallelyn hieronder is in die *verkeerde* plek ?



(A) $\frac{1}{4}$ (B) $\frac{1}{8}$ (C) $\frac{1}{2}$ (D) $\frac{3}{4}$ (E) None of these / Nie een hiervan nie

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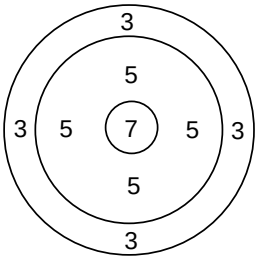
2. On this dart board you can score 3; 5 or 7 with each dart. A boy hits the board with three darts. Which of these cannot be his total score?

2. Op hierdie veerpyltjiebord kan jy tellings van 3; 5 of 7 met elke pyltjie behaal. ’n Seun tref die teiken met drie pyltjies. Watter van hierdie kan nie sy totale telling wees nie?



(A) 9 (B) 11 (C) 12 (D) 13 (E) 19

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3. About how long is this string?

3. Omtrent hoe lank is hierdie tou?

(A) 5 cm (B) 6 cm (C) 7 cm (D) 8 cm (E) 9 cm

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4. A movie on television is 2 hours 55 minutes long and ends at 16:45. At what time did it start?

4. ’n Film op televisie is 2 uur 55 minute lank en eindig om 16:45. Hoe laat het die film begin?

(A) 13:40 (B) 14:10 (C) 13:50 (D) 13:10 (E) 14:25

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5. A watch gains 30 seconds every six hours. How many minutes will it gain in a week?

5. ’n Horlosie wen 30 sekondes elke ses uur. Hoeveel minute sal dit in ’n week wen?

(A) 10 (B) 2 (C) 7 (D) 14 (E) 21

AMESA The Association for Mathematics Education of South Africa

In cooperation with the
Western Cape Education Department
Gauteng Education Department

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Research Unit for Mathematics Education of the University of Stellenbosch

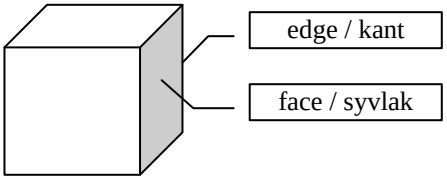
6. This combination lock can be opened with a secret 3-digit combination (each digit is chosen from 0-9). How many different combinations are possible?

6. Hierdie kombinasieslot kan met 'n geheime 3-syfer kombinasie oopgemaak word (elke syfer word uit 0-9 gekies). Hoeveel verskillende kombinasies is moontlik?

(A) 999 (B) 1000 (C) 720 (D) 504 (E) 729

7. This sketch shows a cube with one edge marked. How many edges does the cube have all together?

7. Hierdie skets wys ’n kubus met een kant gemerk. Hoeveel kante het die kubus altesaam?



(A) 8 (B) 12 (C) 6 (D) 24 (E) 9

8. In question 7: How many faces does the cube have all together?

8. In vraag 7: Hoeveel syvlakke het die kubus altesaam?

(A) 8 (B) 12 (C) 6 (D) 24 (E) 9

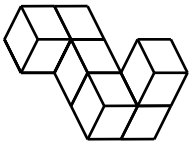
9. In question 7: What is the smallest number of colours needed to paint the faces of a cube in such a way that faces which touch are not painted the same colour?

9. In vraag 7: Wat is die kleinste getal kleure wat nodig is om die syvlakke van ’n kubus te verf sodat syvlakke wat aan mekaar raak nie dieselfde kleur het nie?

(A) 6 (B) 3 (C) 5 (D) 2 (E) 4

10. This object is made by gluing together six wooden cubes. If you now paint the object, how many faces must you paint?

10. Hierdie voorwerp word gemaak deur ses houtkubusse aan mekaar te lym. As jy nou die voorwerp verf, hoeveel syvlakke moet jy verf?



(A) 30 (B) 27 (C) 26 (D) 25 (E) 24

11. Zinkle has 15 marbles less than Zuki. Together they have 95 marbles. How many marbles does Zuki have?

11. Zinkle het 15 albasters minder as Zuki. Saam het hulle 95 albasters. Hoeveel albasters het Zuki?

(A) 80 (B) 40 (C) 55 (D) 50 (E) 110

12. Pete adds three different two-digit numbers (e.g. 58). What is the highest possible total?

12. Pete tel drie verskillende twee-syfergetalle (bv. 58) op. Wat is die grootste moontlike totaal?

(A) 294 (B) 297 (C) 267 (D) 579 (E) None of these / Nie een hiervan nie

13. Bella uses $\frac{3}{4}$ of a metre of material to make a skirt. If she has 5 m of material, how many skirts can she make?

(A) 7 (B) 6 (C) $6\frac{2}{3}$ (D) $3\frac{3}{4}$ (E) None of these / Nie een hiervan nie

13. Bella gebruik ’n $\frac{3}{4}$ meter material om ’n rok te maak. As sy 5 m material het, hoeveel rokke kan sy maak?

14. 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. Maki 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) 27

14. Die banke in ’n klaskamer staan in ewe lang reguit rye. Behalwe as iemand afwesig is, is al die banke gevul. Maki sit in die tweede ry van voor af en in die vierde ry van agter af. Sy is ook die derde leerder van links af en die vyfde leerder van regs af. Hoeveel leerders is daar in die klas?

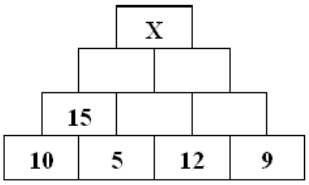
15. The 21st of a month is a Monday. On what day of the week was the 1st of that month?

(A) Monday / Maandag (B) Tuesday / Dinsdag (C) Wednesday / Woensdag (D) Sunday / Sondag (E) Friday / Vrydag

15. Die 21ste van ’n maand is ’n Maandag. Op watter dag van die week was die 1ste van daardie maand?

16. In this number wall you add the two numbers next to each other and write the sum in the brick directly above the two numbers, e.g. 10 + 5 = 15. What number comes in X?

16. In hierdie getal-muur tel jy die twee getalle langs mekaar op en skryf die som in die blok direk bo die twee getalle, bv. 10 + 5 = 15. Watter getal koml in X?



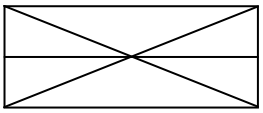
(A) 70 (B) 68 (C) 72 (D) 78 (E) 80

17. If you begin with a certain number, multiply it by 3, then add 8, then divide by 2 and then subtract 6, you will get the original number back. What is the number?

(A) 20 (B) 13 (C) 8 (D) 6 (E) 4

17. As jy begin met ’n sekere getal, dit vermeningvuldig met 3, dan 8 bytel, dan deel deur 2 en dan 6 aftrek, sal jy die oorspronklike getal kry. Wat is die getal?

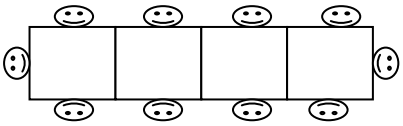
18. How many triangles are there all together in this figure?



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

18. Hoeveel driehoeke is daar altesaam in hierdie figuur?

19. You need seats for 58 people at your party. You make one long table by joining a number of small tables. Each small table can seat two persons, plus one at each end of the long table, e.g. the 4 small tables below can seat 10 people. How many small tables do you need?



(A) 28 (B) 29 (C) 30 (D)32 (E) 34

19. Vir jou partyjie het jy sitplek vir 58 persone nodig. Jy maak een lang tafel deur klein tafeltjies teen mekaar te stoot. By elke klein tafeltjie kan twee persone sit, plus een aan elke kop van die lang tafel, bv. met 4 klein tafeltjies kan 10 persone sit. Hoeveel klein tafeltjies het jy nodig?

20. Arnold drove 10 km east, then 5 km north, then 3 km east, then 11 km south, then 13 km west. How far is he now from his starting place?

(A) 11 km (B) 6 km (C) 3 km (D) 5 km (E) 10 km

20. Arnold reis 10 km oos, toe 5 km noord, toe 3 km oos, toe 11 km suid en daarna 13 km wes. Hoe ver is hy nou van waar hy begin het?

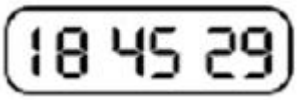
21. Which fraction is between $\frac{1}{5}$ and $\frac{1}{4}$?

(A) $\frac{1}{3}$ (B) $\frac{9}{40}$ (C) $\frac{3}{20}$ (D) $\frac{1}{6}$ (E) Not one of these / Nie een hiervan nie

21. Watter breuk is tussen $\frac{1}{5}$ en $\frac{1}{4}$?

22. On a digital clock displaying hours, minutes and seconds, how many times in each 24-hour period do all six digits change simultaneously?

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



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

23. Five children play tennis. Each child plays each of the others once. How many matches are played?

23. Vyf kinders speel tennis. Elke kind speel een keer teen elkeen van die ander. Hoeveel wedstryde word gespeel?

(A) 10 (B) 12 (C) 6 (D) 20 (E) 15

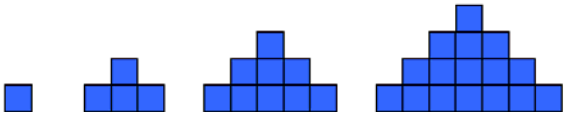
24. In question 23: If 10 children play in the same way, how many games are played all together?

(A) 90 (B) 40 (C) 45 (D) 100 (E) 20

24. In vraag 23: As 10 kinders op dieselfde manier speel, hoeveel wedstryde word altesaam gespeel?

25. Sipho builds “pyramids” with blocks as shown in the sketch below. How many blocks does he need to build $\mathbf{P}_{50}$?

25. Sipho bou “piramides” met blokke soos in die skets getoon. Hoeveel blokke het hy nodig om $\mathbf{P}_{50}$ te bou?



$\mathbf{P}_1$ $\mathbf{P}_2$ $\mathbf{P}_3$ $\mathbf{P}_4$

(A) 2500 (B) 1275 (C) 2401 (D) 2550 (E) 2601