

Mathematics Challenge

GRADE 6 FINAL ROUND

11 OCTOBER 2006

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 6 FINALE RONDE

11 OKTOBER 2006

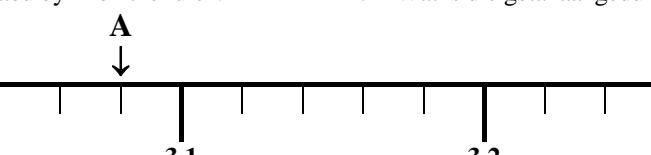
LET OP:

- 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!

1. The sum of three even consecutive numbers is 174. What is the biggest of these numbers?
(A) 58 (B) 62 (C) 60 (D) 56 (E) 54

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. What is the number indicated by A on the ruler?

(A) 2,08 (B) 2,8 (C) 3,0 (D) 3,08 (E) 3,09

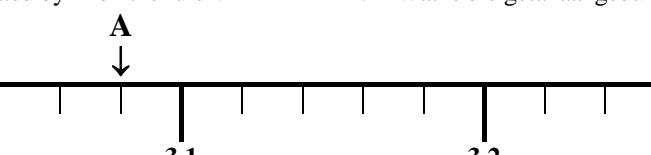
5. A lorry with a load of maize has a mass of 4 653 kg. The mass of the empty lorry is 2 583 kg. One bag of maize has a mass of 90 kg. How many bags of maize are on the lorry?
(A) 20 (B) 21 (C) 22 (D) 23 (E) 24

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) $8883 \div 8$

1. Die som van drie opeenvolgende ewe getalle is 174. Wat is die grootste van hierdie getalle?
(A) 58 (B) 62 (C) 60 (D) 56 (E) 54

2. Watter getal is presies halfpad tussen 5,6 en 5,65?
(A) 5,025 (B) 5,625 (C) $5,62\frac{1}{2}$ (D) 5,605 (E) 5,655

3. Watter een hiervan is *nie* waar nie?
(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. Wat is die getal aangedui deur A op die liniaal?

(A) 2,08 (B) 2,8 (C) 3,0 (D) 3,08 (E) 3,09

5. 'n Vragmotor met 'n vrag mielies het 'n massa van 4 653 kg. Die massa van die leë vragmotor is 2 583 kg en een sak mielies het 'n massa van 90 kg. Hoeveel sakke mielies is daar op die vragmotor?
(A) 20 (B) 21 (C) 22 (D) 23 (E) 24

6. Watter van die volgende deelprobleme het die kleinste res?
(A) $4002 \div 4$ (B) $503 \div 5$ (C) $604 \div 6$ (D) $75 \div 7$ (E) $8883 \div 8$



In cooperation with the
Western Cape Education Department
Gauteng Education Department

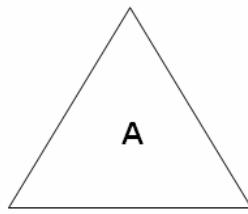
Nasou Via Afrika



CASIO

RUMEUS

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?



(A) 9

(B) 3

(C) 6

(D) 10

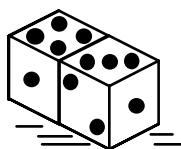
(E) 12



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) $\frac{5}{7}$

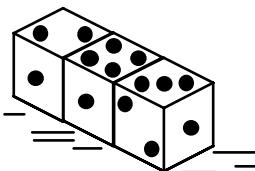
9. If we place dice side by side in a row on a table, only some of the faces are visible: With 2 dice in the row 8 faces are visible; with 3 dice in the row 11 faces are visible, etc. If 50 faces are visible, how many dice are there in the row?



(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

10. 'n Towerstof word in 'n houer geplaas en verdubbel elke minuut in hoeveelheid. As die houer na een uur vol was, na hoeveel minute was die houer half-vol?

(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) $\frac{41}{100}$

11. Watter van die volgende breuke is die naaste aan $\frac{2}{5}$?

(D) $\frac{21}{50}$ (E) $\frac{3}{10}$

12. Karel spends half of his pocket money on computer games, he uses one eighth to buy sweets and saves one eighth. He has R15 left. How much pocket money did he have?

(A) R100

(B) R60

(C) R75

12. Karel spandeer die helfte van sy sakgeld op rekenaarspeletjies, hy gebruik een agste om lekkers te koop en spaar 'n agste. Hy het R15 oor. Hoeveel sakgeld het hy gehad?

(D) R30

(E) R40

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

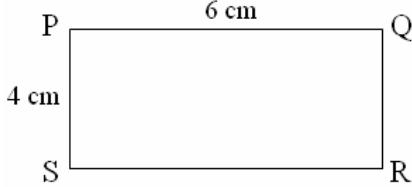
(B) R115

(C) R110

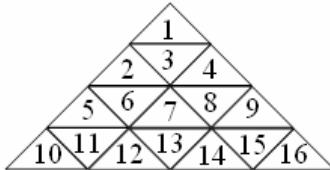
13. 'n Boek en 'n CD saam kos R230. As die CD R60 meer kos as die boek, hoeveel kos die boek?

(D) R170

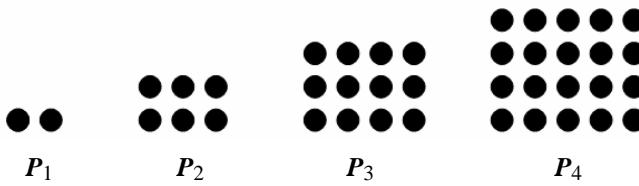
(E) R85

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. Samie opens a book. She multiplies the two page numbers and gets 1332. What is the left-hand page number?
 (A) 666 (B) 36 (C) 667 (D) 37 (E) 38
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. A jam tin has a diameter of 8 cm and is 11 cm high. What is the maximum number of jam tins that can be packed in a cardboard box that is 88 cm long, 44 cm wide and 40 cm high?
 (A) 200 (B) 220 (C) 165 (D) 225 (E) 264
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?
- 
- (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
14. Watter van hierdie breuke is die grootste?
 (D) $\frac{13}{27}$ (E) $\frac{5}{11}$
15. Samie maak 'n boek oop. Sy vermenigvuldig die twee bladsynommers en kry 1332. Wat is die bladsynommer aan die linkerkant?
 (D) 37 (E) 38
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?
 (D) 24 (E) 60
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?
 (D) 4 (E) 9
18. 'n Konfytblik het 'n deursnit van 8 cm en hoogte van 11 cm. Wat is die maksimum aantal konfytblikke wat in 'n kartondoos met lengte 88 cm, breedte 44 cm en hoogte 40 cm gepak kan word?
 (D) 225 (E) 264
19. By 'n fietswinkel staan daar altesaam sewe fietse en driewiele. Hulle het altesaam 19 wiele. Hoeveel fietse is daar?
 (D) 7 (E) 5
20. Jy wil die reghoek in die figuur vergroot sodat 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?



- (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. Bruce uses dots to build patterns as shown below. How many dots will he use for P_{50} ?



- (A) 2601 (B) 1275 (C) 2550 (D) 2500 (E) 2600

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?

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. Bruce bou patronen met kolletjies soos hieronder. Hoeveel kolletjies sal hy gebruik vir P_{50} ?