

**Mathematics Challenge**  
**GRADE 6 FINAL ROUND**  
**13 OCTOBER 2008**

**Wiskunde-uitdaging**  
**GRAAD 6 FINALE RONDE**  
**13 OKTOBER 2008**

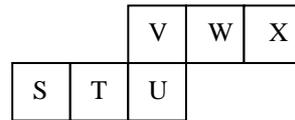
**NOTE:**

- 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!

**LET OP:**

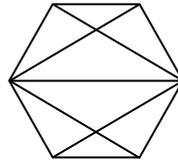
- Beantwoord die vrae volgens die instruksies op die antwoordblad.
- Jy mag 'n sakrekenaar gebruik.
- Die vrae toets insig. Omslagtige berekeninge is dus onnodig en tydrowend.
- Ons hoop jy geniet dit!

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

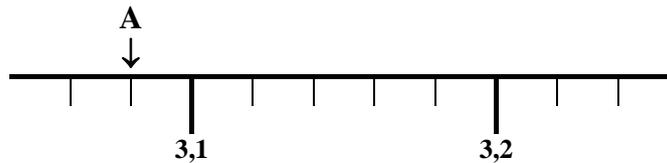


- (A) 8                      (B) 10                      (C) 12                      (D) 14                      (E) 16

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

- (A)  $(1+1) \div (1+1) = 1$     (B)  $2 \div 2 + 2 \div 2 = 2$     (C)  $3 \times 3 - 3 + 3 = 3$     (D)  $(4-4) \times 4 + 4 = 4$     (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. How many whole numbers divide exactly into 100?

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



In cooperation with the  
**Western Cape Education Department**  
**Gauteng Education Department**

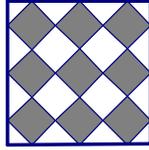


**CASIO**

**RUMEUS**  
 Research Unit for Mathematics Education  
 of the University of Stellenbosch

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)  $8883 \div 8$

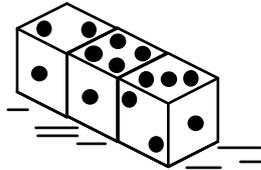
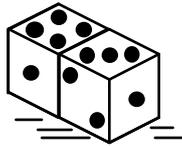
7. In the diagram, the small squares are all of the same size. What fraction of the large square is shaded?  
 7. In die diagram is al die klein vierkantjies ewe groot. Watter breuk van die groot vierkant is verdonker?



- (A)  $\frac{9}{10}$       (B)  $\frac{9}{16}$       (C)  $\frac{3}{7}$       (D)  $\frac{3}{5}$       (E)  $\frac{1}{2}$

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?  
 9. As ons dobbelstene op 'n tafel in 'n ry teen mekaar pak, is net sommige sye sigbaar: Met 2 dobbelstene in die ry is 8 sye sigbaar; met 3 in die ry is 11 sye sigbaar, ens. As 50 sye sigbaar is, hoeveel dobbelstene is daar in die ry?



- (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?  
 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?

- (A) 30      (B) 59      (C) 15      (D) 2      (E) 0,5

11. Which of the following fractions is closest to  $\frac{2}{5}$ ?  
 11. Watter van die volgende breuke is die naaste aan  $\frac{2}{5}$ ?

- (A)  $\frac{399}{1000}$       (B)  $\frac{199}{500}$       (C)  $\frac{41}{100}$       (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?  
 12. Karel spandeer die helfte van sy sakgeld op rekenaarpeletjies, hy gebruik een agste om lekkers te koop en spaar 'n agste. Hy het R15 oor. Hoeveel sakgeld het hy gehad?

- (A) R100      (B) R60      (C) R75      (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?  
 13. 'n Boek en 'n CD saam kos R230. As die CD R60 meer kos as die boek, hoeveel kos die boek?

- (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)  $\frac{5}{11}$

14. Watter van hierdie breuke is die grootste?

- (D)  $\frac{13}{27}$       (E)  $\frac{5}{11}$

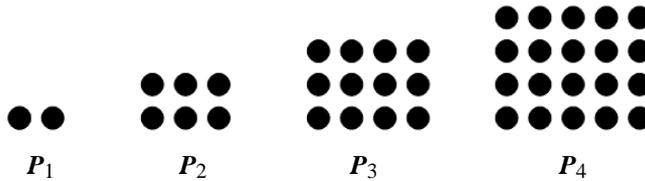
15. Samie opens a book. She multiplies the two page numbers and gets 1332. What is the left-hand page number?

- (A) 666      (B) 36      (C) 667

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. Betty uses dots to build patterns as shown below. How many dots will she use for  $P_{50}$ ?



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

16. Betty bou patrone met kolletjies soos hieronder. Hoeveel kolletjies sal sy gebruik vir  $P_{50}$ ?

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

17. Jackie het 50 graad 6-leerders ondervra oor hul TV voorkeure. 41 sê hulle hou van komedies, 35 sê hulle geniet aksiefleeks en 30 sê hulle hou van beide. Hoeveel van die leerders hou nie van een van die twee nie?

- (D) 4      (E) 9

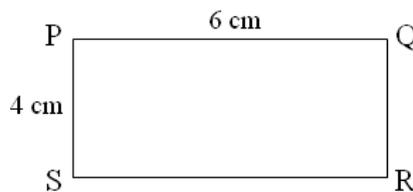
18. A jam tin has a diameter of 8 cm and is 11 cm high. What is the maximum number of jam tins that can be packed in a cardboard box that is 88 cm long, 44 cm wide and 40 cm high?

- (A) 200      (B) 220      (C) 165

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. You want to enlarge the rectangle below 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

19. Jy wil die reghoek hieronder vergroot sodat die sy PS 6 cm lank is. Hoe lank sal die sy PQ in die vergroting wees?

20. A palindrome is a whole number that reads the same forwards or backwards, e.g. 474. How many 3-digit palindromes are there?

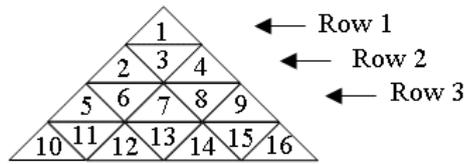
- (A) 100      (B) 90      (C) 999

20. 'n Palindroom is 'n getal wat dieselfde lees van links en van regs, bv. 474. Hoeveel 3-syfer palindrome is daar?

- (D) 810      (E) None of these  
Nie een hiervan nie

21. The last questions all refer to this arrangement of numbers. There are three numbers in Row 2 and five numbers in Row 3. If the pattern is continued, how many numbers are there in Row 50?

21. Die laaste vrae verwys almal na hierdie rangskikking van getalle. Daar is drie getalle in Ry 2 en vyf getalle in Ry 3. As die patroon voortgesit word, hoeveel getalle is in Ry 50?



- (A) 99                      (B) 101                      (C) 51                      (D) 151                      (E) 150

22. What is the first (left) number in Row 50?

22. Wat is die eerste (linker) getal in Ry 50?

- (A) 2450                      (B) 2500                      (C) 2550                      (D) 2402                      (E) None of these  
Nie een hiervan nie

23. What is the last (right) number in Row 50?

23. Wat is die laaste (regter) getal in Ry 50?

- (A) 2450                      (B) 2500                      (C) 2550                      (D) 2402                      (E) None of these  
Nie een hiervan nie

24. What is the middle number in Row 50?

24. Wat is die middelste getal in Ry 50?

- (A) 2457                      (B) 2403                      (C) 2557                      (D) 2401                      (E) None of these  
Nie een hiervan nie

25. What is the sum of all the numbers in Row 50?

25. Wat is die som van al die getalle in Ry 50?

- (A) 245100                      (B) 155220                      (C) 25570                      (D) 122550                      (E) None of these  
Nie een hiervan nie