

**Mathematics Challenge**  
**GRADE 6 FIRST ROUND**  
**AUGUST 2010**

**Wiskunde-uitdaging**  
**GRAAD 6 EERSTE RONDE**  
**AUGUSTUS 2010**

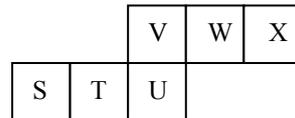
**NOTE:**

- 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!

**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!

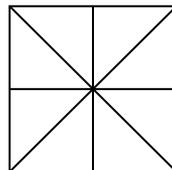
1. If the figure shown is folded to make a cube, then what is the letter opposite the T?



- (A) S                      (B) U                      (C) V                      (D) W                      (E) X

1. As die figuur hieronder gevou word om 'n kubus te vorm, watter letter sal oorkant die T wees?

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



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

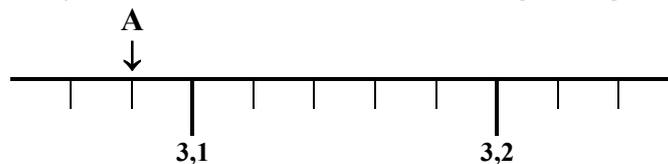
2. Hoeveel verskillende driehoeke (van alle groottes) is daar in hierdie figuur?

3. The sum of 7 consecutive numbers is 63. Which is the largest of the 7 numbers?

- (A) 63                      (B) 9                      (C) 13                      (D) 12                      (E) 10

3. Die som van 7 opeenvolgende getalle is 63. Watter een is die grootste van die 7 getalle?

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

4. Wat is die getal aangedui deur A op die liniaal?

5. How many whole numbers divide exactly into 100?

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

5. Hoeveel heelgetalle deel presies in 100 in?



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

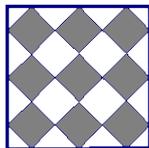


**CASIO**

**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?



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

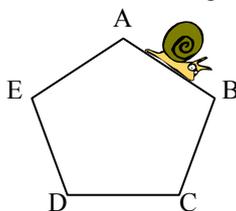
8. Which of the following is a fraction between  $\frac{5}{6}$  and  $\frac{7}{8}$ ?  
 (A)  $\frac{4}{5}$       (B)  $\frac{18}{22}$       (C)  $\frac{41}{48}$       (D)  $\frac{8}{9}$       (E)  $\frac{5}{7}$

9. The sum of two numbers is 30. What is the greatest possible product of the two numbers?  
 (A) 150      (B) 900      (C) 200      (D) 400      (E) 225

10. In the Soccer World Cup group stage, every team plays one game against every other team in the same group. How many games were played in Group A between South Africa, France, Uruguay and Mexico?  
 (A) 3      (B) 4      (C) 6      (D) 10      (E) 12

11. Which of the following fractions is closest to  $\frac{2}{5}$ ?  
 (A)  $\frac{399}{1000}$       (B)  $\frac{199}{500}$       (C)  $\frac{41}{100}$       (D)  $\frac{21}{50}$       (E)  $\frac{3}{10}$

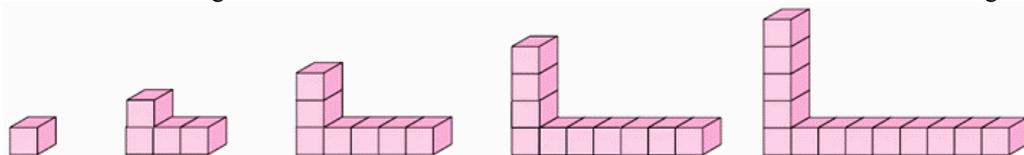
12. A snail starts at corner A and crawls clockwise once around the regular pentagon (a figure with 5 sides of equal length). What side will he be on when he has crawled  $\frac{13}{20}$  of the distance around the pentagon?



- (A) AB      (B) BC      (C) CD      (D) DE      (E) EA

13. Refer to the previous question. If each side of the pentagon is 5 cm long, how far has he then still got to go?  
 (A) 16 cm      (B) 16,25 cm      (C) 9 cm      (D) 8,75 cm      (E) 7 cm

14. Suzi builds L shapes like these with small blocks. For example, to build an L shape that is 3 blocks high she uses 7 blocks. How many blocks does she use to build an L shape that is 100 blocks high?



- (A) 200                      (B) 296                      (C) 299                      (D) 298                      (E) 300

14. Suzi bou L-vorms soos hieronder met klein blokkies. Byvoorbeeld, om 'n L te bou wat 3 blokkies hoog is, gebruik sy 7 blokkies. Hoeveel blokkies gebruik sy om 'n L-vorm te bou wat 100 blokkies hoog is?

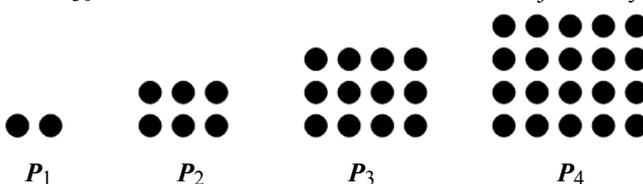
15. Samie opens a book. She multiplies the two page numbers and gets 1332. What is the left-hand page number?

- (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

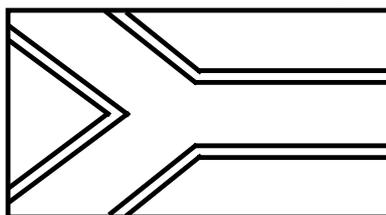
17. Mr Safe has a 4-digit combination that opens his lock. He remembers that the four digits are 3, 5, 7 and 9, but he has forgotten the correct order. What is the most different combinations that he must try to open the safe?

- (A) 4                      (B) 8                      (C) 16

17. Mnr. Kluis het 'n vier-syfer kombinasie wat sy slot oopmaak. Hy onthou dat die vier syfers 3, 5, 7 en 9 is, maar hy kan nie die volgorde onthou nie. Wat is die meeste verskillende kombinasies wat hy sal moet probeer om die slot oop te maak?

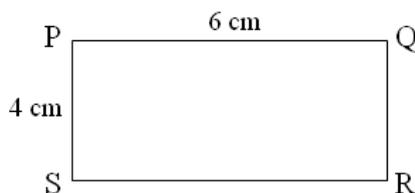
- (D) 24                      (E) 36

18. This flag has 7 regions. You want to colour the flag so that no two touching regions are the same colour. What is the least number of colours you need?



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

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. In how many different ways can the four people be arranged in a line next to each other for the photograph?

20. Op hoeveel verskillende maniere kan die vier mense in 'n lyn langs mekaar gerangskik word vir die foto?



- (A) 4                      (B) 14                      (C) 16                      (D) 24                      (E) None of these  
Nie een hiervan nie

21. The numbers from 1 to 9 must be written in the grid below according to the following rules:

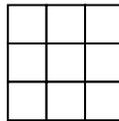
21. Die getalle van 1 tot 9 moet in die rooster hieronder ingevul word volgens die volgende reëls:

- Only one number per block
- 1, 8 and 6 are in the top row
- 8, 3, 5, 1, 9 and 4 are not in the right column
- 9, 4 and 2 are in the bottom row
- 6, 4, 3, 1, 7, and 2 are not in the left column

- Slegs een getal in elke blokkie
- 1, 8 en 6 is in die boonste ry
- 8, 3, 5, 1, 9 en 4 is nie in die regterkantste kolom nie
- 9, 4 en 2 is in die onderste ry
- 6, 4, 3, 1, 7, en 2 is nie in die linkerkantste kolom nie

What number will be in the centre of the grid?

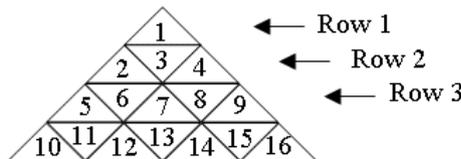
Watter getal kom in die middelste blok van die rooster?



- (A) 5                      (B) 3                      (C) 7                      (D) 2                      (E) You cannot know  
Mens kan nie sê nie

22. 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?

22. 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

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

23. 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

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

24. 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

25. What is the middle number in Row 50?

25. Wat is die middelste getal in Ry 50?

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