

Mathematics Challenge

GRADE 6 FINAL ROUND

8 SEPTEMBER 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!

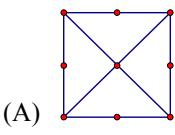
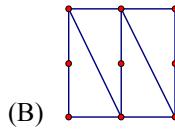
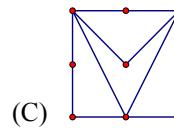
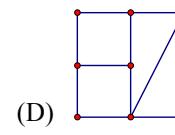
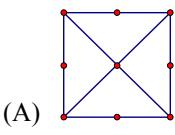
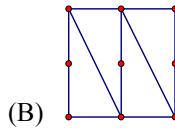
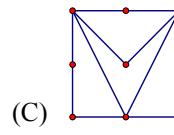
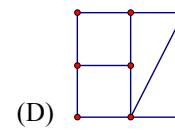
Wiskunde-uitdaging

GRAAD 6 FINALE RONDE

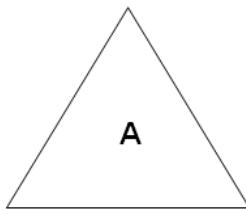
8 SEPTEMBER 2010

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. How many different triangles (of all sizes) are in this figure?
- (A) 8 (B) 10 (C) 12 (D) 14 (E) 16
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 square is *not* divided into quarters?
- (A)  (B)  (C)  (D)  (E) None of these
6. Watter vierkant is *nie* in kwarte verdeel nie?
- (A)  (B)  (C)  (D)  (E) Nie een hiervan nie
-

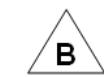
7. A side of the equilateral triangle A is three times the length of a side of equilateral triangle B. How many triangles B will fit into triangle A?



(A) 9

(B) 3

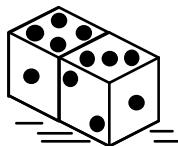
(C) 6



(D) 10

(E) 12

8. 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. How many faces are visible with 30 dice in the row?

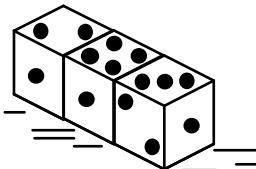


(A) 110

(B) 92

(C) 900

8. As ons dobbelstene op 'n tafel in 'n ry teen mekaar pak, is net sommige sye sigbaar: Met 2 dobblestene in die ry is 8 sye sigbaar; met 3 in die ry is 11 sye sigbaar, ens. Hoeveel sye is sigbaar met 30 dobbelstene in die ry?



(D) 180

(E) 90

9. In question 8: If 50 faces are visible, how many dice are there in the row?

(A) 12

(B) 13

(C) 14

9. In vraag 8: As 50 sye sigbaar is, hoeveel dobbelstene is daar in die ry?

(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

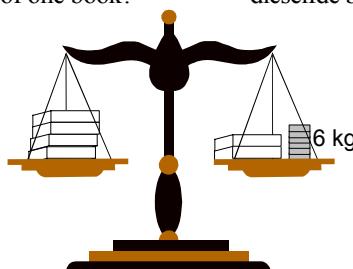
(C) 15

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. The scale shows that 4 books are balanced by 2 of the same books plus 6 kg. What is the mass of one book?



(A) 1½ kg

(B) 6 kg

(C) 3 kg

(D) 2 kg

(E) 2½ kg

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 (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. Today, 8 September 2010, falls on a Wednesday. On what day of the week will 8 September 2020 fall?
 Wednesday Tuesday Friday
 (A) Woensdag (B) Dinsdag (C) Vrydag (D) Saterdag (E) Sunday
 Saturday Sunday
 (D) Saterdag (E) Sondag
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. Study the following pattern.
 What is P_{20} ?

 $P_1 = 5$ $P_2 = 9$ $P_3 = 13$
 (A) 77 (B) 79 (C) 80 (D) 81 (E) 83
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

22. 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

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

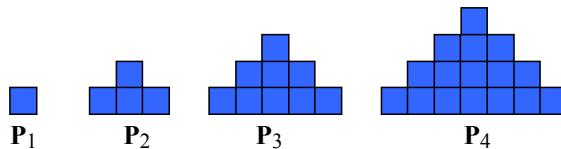


- (A) 10 (B) 12 (C) 6 (D) 20 (E) 15

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

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



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

22. In die Wêreldbeker-sokker groepwedstryde speel elke span een keer teen elke ander span in dieselfde groep. Hoeveel wedstryde is in Groep A tussen Suid-Afrika, Frankryk, Uruguay en Mexico gespeel?