

Jet SA Mathematics Challenge Jet SA Wiskunde-uitdaging

GRADE 7 FIRST ROUND GRAAD 7 EERSTE RONDE

AUGUST 2012 AUGUSTUS 2012

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. I multiplied two consecutive numbers (e.g. 4 and 5) on my calculator and got the answer 702. What is the sum of the two numbers?

(A) 42 (B) 49 (C) 53

1. Ek het twee opeenvolgende getalle (bv. 4 en 5) op my sakrekenaar vermenigvuldig en die antwoord is 702. Wat is die som van die twee getalle?

(D) 65 (E) 51

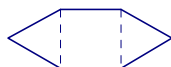
2. If $\frac{1}{2}$ of a number is $\frac{1}{10}$, what is $\frac{5}{7}$ of the same number?

(A) $\frac{1}{5}$ (B) $\frac{1}{7}$ (C) $\frac{1}{8}$

2. $\frac{1}{2}$ van 'n getal is $\frac{1}{10}$. Wat is $\frac{5}{7}$ van dieselfde getal?

(D) $\frac{2}{5}$ (E) $\frac{2}{7}$

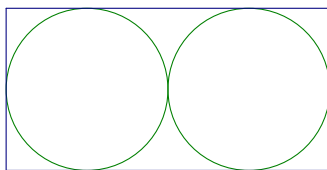
3. This figure consists of a square of side length 2 cm, with an equilateral triangle attached to each end. What is the perimeter of the figure?



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

3. Hierdie figuur bestaan uit 'n vierkant met sy lengte 2 cm, met 'n gelyksydige driehoek aan elke kant. Wat is die omtrek van die figuur?

4. The sketch shows a rectangle that encloses two circles each of radius 2 cm. What is the area of the rectangle?



(A) 8 cm² (B) 32 cm² (C) 16 cm² (D) 12 cm² (E) 24 cm²

4. Die skets toon 'n reghoek wat twee sirkels, elk met 'n radius van 2 cm omsluit. Wat is die oppervlakte van die reghoek?

5. Calculate the value of

$$1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{3}}}$$

- (A) $1\frac{4}{7}$ (B) $\frac{4}{7}$ (C) $1\frac{2}{3}$ (D) $3\frac{1}{3}$ (E) $5\frac{1}{3}$

5. Bereken die waarde van

$$1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{3}}}$$

- (D) $3\frac{1}{3}$ (E) $5\frac{1}{3}$

6. Which of these fractions is the largest?

- (A) $\frac{7}{15}$ (B) $\frac{3}{7}$ (C) $\frac{11}{23}$

6. Watter van hierdie breuke is die grootste?

- (D) $\frac{4}{9}$ (E) $\frac{5}{11}$

7. A teacher writes five numbers on the board. The five numbers have an average of 30. She then erases one of the numbers. The average of the four remaining numbers is 28. What number did she erase?

- (A) 32 (B) 10 (C) 8

7. 'n Onderwyseres skryf vyf getalle op die bord waarvan die gemiddelde 30 is. Dan vee sy een van die getalle uit. Die gemiddelde van die oorblywende vier getalle is 28. Watter getal het sy uitgevee?

- (D) 38 (E) One cannot know
Mens kan nie sê nie

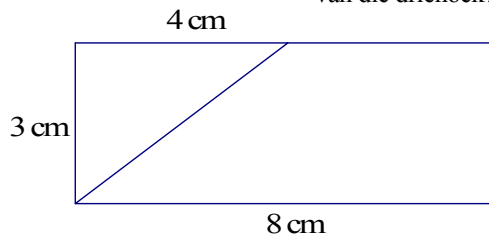
8. 28 July 2012 was on a Saturday. What is the first year in which 28 July will again be on a Saturday?

- (A) 2018 (B) 2017 (C) 2019

8. 28 Julie 2012 was op 'n Saterdag. Wat is die eerste jaar waarin 28 Julie weer op 'n Saterdag sal val?

- (D) 2016 (E) 2020

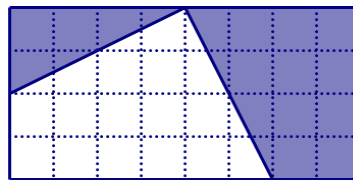
9. A 3 cm by 8 cm rectangle is cut into 2 pieces as shown. The two pieces are then rearranged to form a right-angled triangle. How long is the shortest side of this triangle?



- (A) 9 cm (B) 6 cm (C) 4 cm (D) 7 cm (E) 5 cm

9. 'n 3 cm by 8 cm reghoek word in twee stukke gesny soos getoon. Die twee stukke word dan herrangskik om 'n reghoekige driehoek te vorm. Hoe lank is die kortste sy van die driehoek?

10. What fraction of the area of this rectangle is shaded?



- (A) $\frac{1}{3}$ (B) $\frac{1}{4}$ (C) $\frac{1}{2}$ (D) $\frac{5}{8}$ (E) $\frac{3}{8}$

10. Watter beuk van die oppervlakte van hierdie reghoek is verdonker?

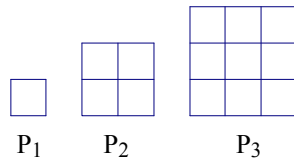
11. The length of a rectangle is four times as long as its width. The perimeter of the rectangle is 100 m. What is the area of the rectangle?

- (A) 50 m^2 (B) 40 m^2 (C) 200 m^2

11. Die lengte van 'n reghoek is vier keer so lank as sy breedte. Die omtrek van die reghoek is 100 m. Wat is die oppervlakte van die reghoek?

- (D) 100 cm^2 (E) 400 m^2

12. In the sketch below, Pattern 3 has nine squares and eight lines. If the pattern continues to grow, how many lines are there in P_{20} ?



- (A) 25 (B) 40 (C) 38 (D) 44 (E) 42

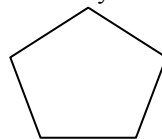
13. In question 12, how many lines are there in the pattern with 64 squares?

- (A) 32 (B) 18 (C) 20 (D) 30 (E) 16

14. In question 12, how many squares are there in the pattern with 64 lines?

- (A) 900 (B) 961 (C) 1024 (D) 128 (E) 841

15. The perimeter of a square and the perimeter of a regular pentagon (a five-sided figure with all sides equal in length) are equal. If the length of a side of the square is 15 cm, what is the length of a side of the pentagon?



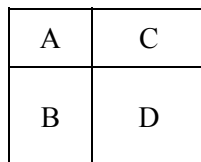
- (A) 10 cm (B) 12 cm (C) 15 cm (D) 5 cm (E) 7,5 cm

16. Penny had a bag full of marbles. She gave one-third of the marbles to Manto, and then one-fourth of the remaining marbles to John. Penny then had 24 marbles left in the bag. How many marbles did she give Manto?

- (A) 12 (B) 24 (C) 48 (D) 16 (E) 15

16. Penny het 'n sak vol albasters. Sy gee een-derde van die albasters vir Manto, en toe een-kwart van die oorblywende albasters vir John. Penny het toe 24 albasters in die sak oor. Hoeveel albasters het sy vir Manto gegee?

17. The areas of rectangles A, B and C below are 12 cm^2 , 21 cm^2 and 20 cm^2 respectively. What is the area of rectangle D?



- (A) 32 cm^2 (B) 35 cm^2 (C) 55 cm^2 (D) 56 cm^2 (E) 88 cm^2

17. Die oppervlakte van reghoeke A, B en C hieronder is onderskeidelik 12 cm^2 , 21 cm^2 en 20 cm^2 . Wat is die oppervlakte van reghoek D?

18. How many two-digit numbers are there with both digits odd?

- (A) 20 (B) 25 (C) 45 (D) 50 (E) 30

18. Hoeveel tweesyfer-getalle is daar met beide syfers onewe?

19. Numbers are arranged in the following pattern:

0	1	2	3	4	5	row 0
6	7	8	9	10	11	row 1
12	13	14	15	16	17	row 2
...	...	...	...	...	...	row 3

What is the third number in row 80?

- (A) 480 (B) 486 (C) 483

19. Getalle word in die volgende patroon rangskik:

0	1	2	3	4	5	ry 0
6	7	8	9	10	11	ry 1
12	13	14	15	16	17	ry 2
...	...	...	...	...	...	ry 3

Wat is die derde getal in ry 80?

- (D) 482 (E) 241

20. In question 19, in which row is the number 4321?

- (A) 711 (B) 701 (C) 719

20. In vraag 19, in watter ry is die getal 4321?

- (D) 721 (E) 720

21. Check this number pattern:

$$1 = 1 \times 1$$

$$1 + 3 = 2 \times 2$$

$$1 + 3 + 5 = 3 \times 3$$

$$1 + 3 + 5 + 7 = 4 \times 4$$

Now calculate

1 + 3 + 5 + 7 + all the way up to ... + 97 + 99

- (A) 2500 (B) 10000 (C) 2401

21. Kontroleer hierdie getalpatroon:

$$1 = 1 \times 1$$

$$1 + 3 = 2 \times 2$$

$$1 + 3 + 5 = 3 \times 3$$

$$1 + 3 + 5 + 7 = 4 \times 4$$

Bereken nou

1 + 3 + 5 + 7 + al die pad tot by ... + 97 + 99

- (D) 50000 (E) 2601

22. Lee buys two drinks and one ice-cream for R15. Kim buys one drink and two ice-creams for R12. How much will Mario pay for one drink and one ice-cream?

- (A) R12 (B) R11 (C) R8

22. Lee koop twee koeldranke en een roomys vir R15. Kim koop een koeldrank en twee roomyse vir R12. Hoeveel sal Mario betaal vir een koeldrank en een roomys?

- (D) R9 (E) R10

23. In question 22, what does a drink cost?

- (A) R6 (B) R3 (C) R9

23. In vraag 22, wat kos 'n koeldrank?

- (D) R4 (E) R5,50

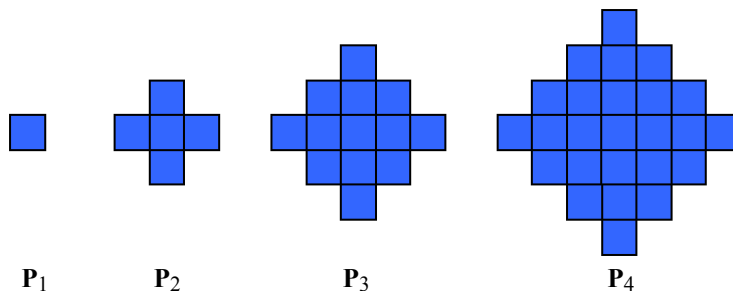
24. A man and his daughter together weigh 90 kg, the man with his cat weigh 70 kg, and the daughter and cat together weigh 40 kg. What do the man, daughter and cat weigh together?

- (A) 95 kg (B) 100 kg (C) 102 kg

24. 'n Man en sy dogter weeg saam 90 kg, die man en sy kat weeg saam 70 kg, en die dogter en die kat weeg saam 40 kg. Wat weeg die man, dogter en kat saam?

- (D) 105 kg (E) None of these
-
- Nie een hiervan nie

25. Sipho uses tiles to build patterns as shown below. How many tiles will he use for
- P_{50}
- ?



- (A) 2500 (B) 2401 (C) 4901 (D) 5000 (E) 5001