

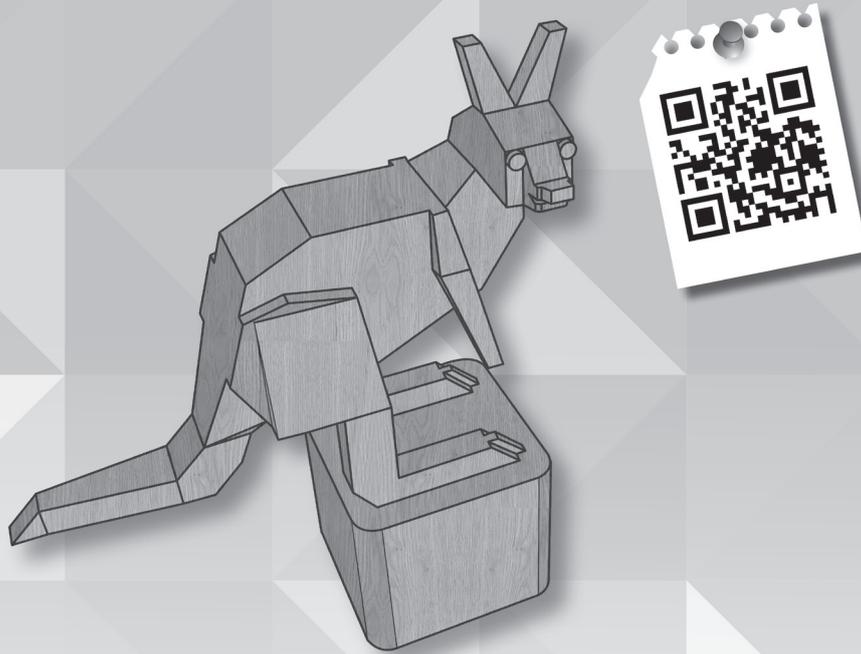
WereldWijde WiskundeWedstrijd

W4Kangoeroe

COMPETITION PERIOD

MARCH 19 TO 27

WWW.W4KANGOEROE.NL



GOOD LUCK AND MOST OF ALL HAVE FUN!

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calculators are not allowed



you may use 75 minutes



only a pencil, an eraser and scribbling paper are allowed



results and prizes will arrive at school at the end of May



answers will be posted on the website about April 4th



solutions will be posted on the website about April 20th

wizBRAIN
havo 1, 2 & 3
vwo 1 & 2
vmbo 3 & 4 m.u.v. basisberoepsgerichte leerweg.

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1. In which diagram does the grey part have the largest area?



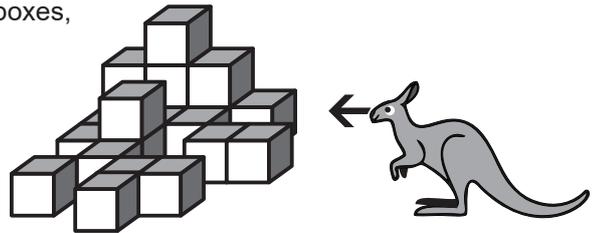
E. All grey parts are the same.

2. The year 2026 is called an 'all-even' year because 2026 consists only of even digits.

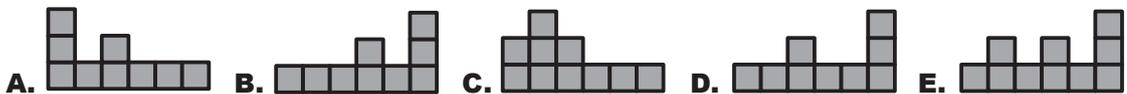
How many years pass before the year is an 'all-even' year for the first time where it's digits are also all different?

A. 2 B. 20 C. 22 D. 38 E. 42

3. *Karla* the kangaroo is looking at a structure made of boxes, as shown on the right.



What does she see?



4. There are three different roads from city A to city B. There are five different roads from city B to city C. *Ahmad* travels from city A to city C via city B. He wants to return to city A via a different route.

How many possible routes can he choose for his return trip?

A. 5 B. 6 C. 10 D. 12 E. 14

5. Two buses departed at 08:00 hours. One bus travelled from point A to point B and the other from B to A, along the same road. Both buses travelled at a constant speed, without stopping. They passed each other at 10:00 hours. One bus arrived at its destination at 11:00 hours.

At what time did the other bus arrive at its destination?

A. At 11:00 h B. At 12:00 h C. At 13:00 h D. At 14:00 h E. At 15:00 h

6. *Karin* wants to place the numbers 2, 0, 2 and 6 in the boxes $\frac{\square + \square}{\square - \square}$, with one number in each box.

What is the smallest positive answer she can get?

A. $\frac{1}{6}$ B. $\frac{1}{4}$ C. $\frac{1}{3}$ D. $\frac{1}{2}$ E. $\frac{2}{3}$

7. The puzzle on the right can be completed with any of the five pieces below.



With which piece could you see the most islands on the completed puzzle?



8. Which of the following numbers is not the sum (addition) of two or more consecutive positive whole numbers?

A. 5 B. 6 C. 7 D. 8 E. 9

9. Joey held a digital clock in front of a standing mirror and noticed that the numbers on the reflection of the clock in the mirror showed a different time of day.

1234567890



Which of the following times could Joey's clock be showing?

- A. B. C. D. E.

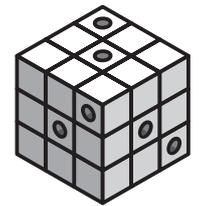
10. Four seats in a row, numbered from 1 to 4 from left to right, are occupied by *Andi*, *Budi*, *Citra* and *Dira*, but not in that order, with the following conditions:

- *Andi* is not sitting in seat 1.
- *Budi* is sitting to the right of *Andi*.
- *Dira* is not sitting at either end.
- *Citra* is not sitting next to *Andi*.

In what order from left to right are they sitting?

- A. *Budi*, *Dira*, *Andi*, *Citra* B. *Citra*, *Andi*, *Dira*, *Budi* C. *Citra*, *Dira*, *Andi*, *Budi*
 D. *Citra*, *Dira*, *Budi*, *Andi* E. *Dira*, *Citra*, *Budi*, *Andi*

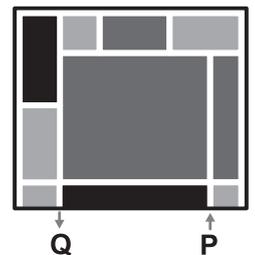
11. A large wooden cube is made up of small cubes. *Jannis* has drilled six holes through this large cube, parallel to an edge, see drawing.



How many small cubes do **not** have a hole?

- A. 6 B. 12 C. 13 D. 15 E. 21

12. The map in the figure on the right shows part of *Kangaroo City*, where the white lines represent roads. According to the traffic rules of *Kangaroo City*, vehicles may only go straight ahead or turn right at each intersection. *Ayla* wants to travel from point P to point Q.



What is the smallest number of times she must turn right?

- A. 4 B. 5 C. 6 D. 7 E. 9

13. My mug has the numbers 1 to 9 on it. It can be seen in four of the pictures below.

Which picture shows a mug that is different from mine?

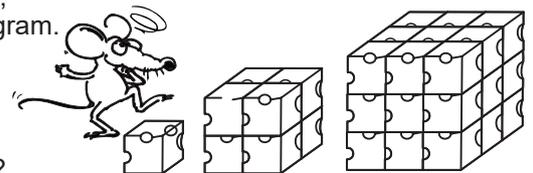
- A. B. C. D. E.

14. *Mariam* has 13 euros less than the total amount *Ria* and *Emma* have. *Ria* has 5 euros more than the total amount *Emma* and *Mariam* have.

How many euros does *Emma* have?

- A. 4 B. 7 C. 8 D. 17 E. 18

15. *Mirko* the mouse has three blocks of cheese of different sizes, each made up of identically sized cubes, as shown in the diagram. He ate 40% of the first block of cheese, 40% of the second and 20% of the third.



What percentage of the total amount of cheese did *Mirko* eat?

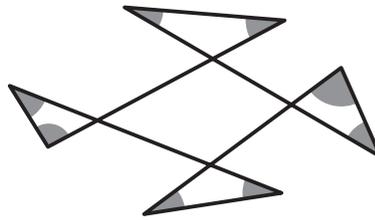
- A. 23 % B. 24 % C. 25 % D. 30 % E. 33 %

16. Five young gnomes and an older gnome live in a magical forest. Each young gnome eats six blueberries per day. Every day, the older gnome eats five blueberries more than the average number of blueberries eaten by all six gnomes together.

How many blueberries does the older gnome eat every day?

- A. 10 B. 11 C. 12 D. 13 E. 14

17. What is the sum of all the grey angles?



- A. 180° B. 240° C. 270° D. 360° E. 450°

18. Thirty students had signed up for a trip. All students had to pay the same amount for the bus ride. At the last minute, three students decided not to go, which increased the cost for each remaining student by 2 euro.

What was the total amount that had to be paid for the bus?

- A. 108 B. 486 C. 540 D. 600 E. 840

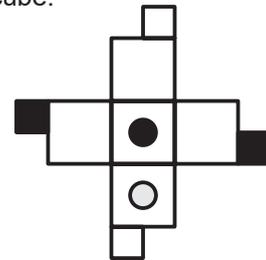
19. In the given addition problem, each letter represents a single digit and different letters represent different digits.

$$\begin{array}{r} ABC \\ ACB + \\ \hline C4A \end{array}$$

What is the value of $A + B + C$?

- A. 16 B. 17 C. 18 D. 19 E. 20

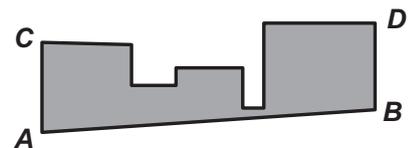
20. The figure below shows a template that can be used to make a cube.



Which of the following images shows the completed cube?

- A. B. C. D. E.

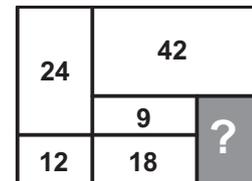
21. A shape is made up of five touching squares with areas of 1 m^2 , 4 m^2 , 9 m^2 , 16 m^2 and 25 m^2 in the order shown in the image. The bottom sides of these squares are aligned. Point A is a vertex of the left-hand square. Valeriu now cuts the shape along line AB, which is parallel to CD.



What is the area of the remaining shape?

- A. 44.5 m^2 B. 45.5 m^2 C. 46.5 m^2 D. 47.5 m^2 E. 48.5 m^2

22. The rectangle shown is divided into six smaller rectangles. The areas of five of these rectangles are given.



What is the area of the sixth, grey rectangle?

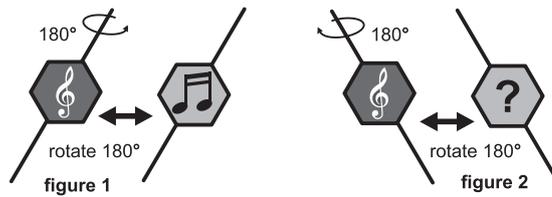
- A. 14 B. 15 C. 16 D. 18 E. 20

23. Anna, Bea and Cili went to a stationary store to buy pens and rulers. Each of them bought exactly ten items in total. Anna bought twice as many pens as Cili bought rulers. Bea bought twice as many pens as Anna bought rulers. In total, the girls bought an even number of rulers.

How many pens did Bea buy?

- A. 2 B. 4 C. 6 D. 7 E. 8

24. *Wolfgang* has a piece of cardboard with an image on both the front and the back. When he rotates it around the indicated axis, he sees the two images shown in figure 1 below:



He then rotates the piece of cardboard around another axis, see figure 2 above.

Which image does he then see on the back of his piece of cardboard?



25. *Joshua* has a certain number of which the unit digit is 1 written on a piece of paper. He erases this 1, resulting in a number that is 2026 smaller than the original number.

What is the sum of the digits of the original number?

- A. 10 B. 12 C. 14 D. 16 E. 18

26. A large cube with a side length of 4 consists of small cubes with a side length of 1.

What is the smallest number of small cubes that must be removed from the large cube for the surface area of the remaining shape to be 1.5 times larger than the surface area of the large cube?

- A. 6 B. 8 C. 10 D. 12 E. 18

27. How many of the four statements below are true?

- Exactly two of the statements are false.
- This statement is true.
- The previous statement is true.
- The three statements above are false.

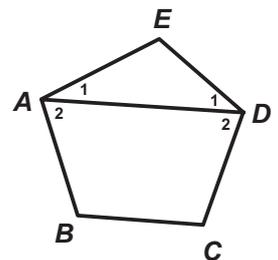
- A. 0 B. 1 C. 2 D. 3 E. 4

28. *Deindra* wants to arrange the five numbers 1, 2, 3, 4 and 5 into a row such that the last number is odd. She also wants the sum of every three consecutive numbers is divisible by the first of those three numbers.

How many such arrangements could she make?

- A. 2 B. 3 C. 4 D. 5 E. 6

29. *Bernhard* wants to draw a pentagon $ABCDE$ with diagonal AD , where $EA = ED$ en $AB = CD$. He wants AD to be parallel to BC . Unfortunately, his drawing is not very accurate. He also wants $\angle E$ and $\angle D_2$ to be equal and the ratio between the sizes of $\angle D_1$ and $\angle A_2$ to be equal to 3 : 2



How big would $\angle C$ be if *Bernhard* had made an accurate drawing?

- A. 110° B. 115° C. 120° D. 125° E. 135°

30. *Anna*, *Elsa* and their mother are playing a reasoning game. Their mother chooses one of the sweets below. She tells *Anna* the pattern on the wrapper and tells *Elsa* the shape of the sweet. The mother first asks, 'Do you know which sweet I have chosen?' *Anna* and *Elsa* both answer 'No'. The mother asks a second time, 'Do you know now?' Again, both answer 'No'. But when the mother asks a third time, both *Anna* and *Elsa* give the correct answer at the same time.

Which sweet was chosen?

