

## WereldWijde WiskundeWedstrijd **W4Kangoeroe**

[WWW.W4KANGOEROE.NL](http://WWW.W4KANGOEROE.NL)

**THURSDAY  
MARCH 17<sup>TH</sup> 2022**

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*Good luck and most of  
all have fun!*



calculators are not allowed



you may use 50 minutes



Only a pencil, an eraser and scribbling paper are allowed



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

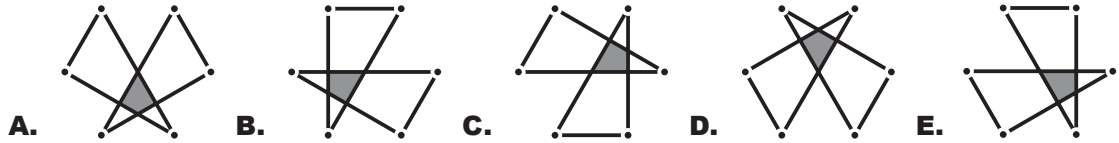


answers will be posted on the website about March 29<sup>th</sup>



solutions will be posted on the website about April 20<sup>th</sup>

1. In the picture above you see 6 dots. 1.     . 5  
*Maaïke* connects the even-numbered dots, which creates a triangle.  
 Then *Maaïke* also connects the odd-numbered dots, which creates a second triangle. 2 •             • 4  
 Which figure does *Maaïke* get? 6     3

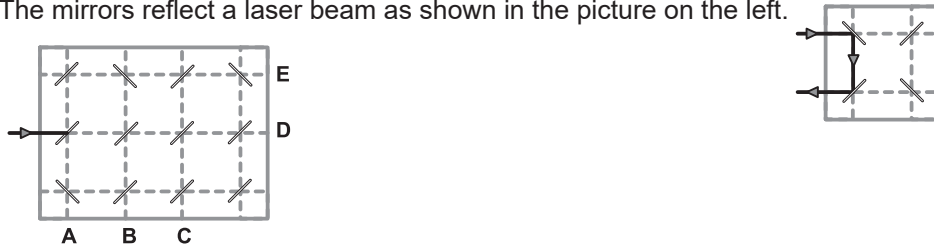


2. In a shop marbles are packaged in bags of 5, 10 and 25 marbles per bag.  
*Tom* wants to buy exactly 95 marbles.

What is the smallest number of bags he has to buy?

- A. 4                      B. 5                      C. 7                      D. 8                      E. 10

3. The mirrors reflect a laser beam as shown in the picture on the left.

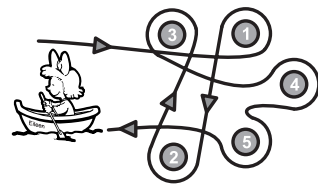


At which letter does the laser beam come out of the picture?

- A. A                      B. B                      C. C                      D. D                      E. E

4. *Eileen* sails with her boat around 5 buoys, see picture.

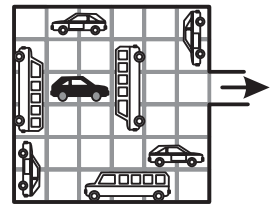
Around which buoys is she sailing counterclockwise?



- A. 1 and 3              B. 1 and 4              C. 1, 4 and 5              D. 2 and 3              E. 2, 3 and 5

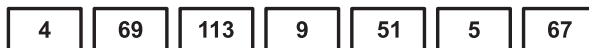
5. There are a number of vehicles in a garage, see picture on the right.  
 The vehicles can only move forward or backward.

What is the smallest number of vehicles you must move so that the black car can get out?



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

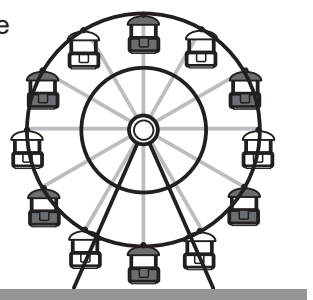
6. *Bodil* arranges these 7 cards with numbers in a different order to get the smallest possible 12 digit number.



What are the last 3 digits of this number?

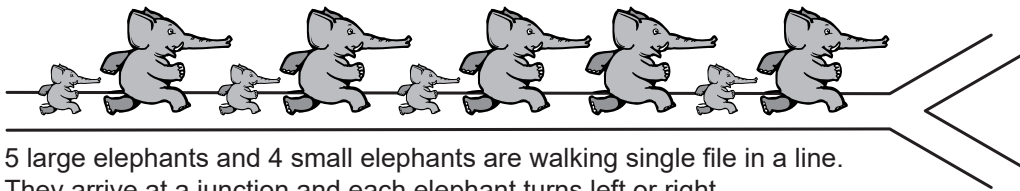
- A. 113                      B. 459                      C. 679                      D. 699                      E. 967

7. Which part of a whole turn does the Ferris wheel have to rotate so that there is a white wagon at the top?



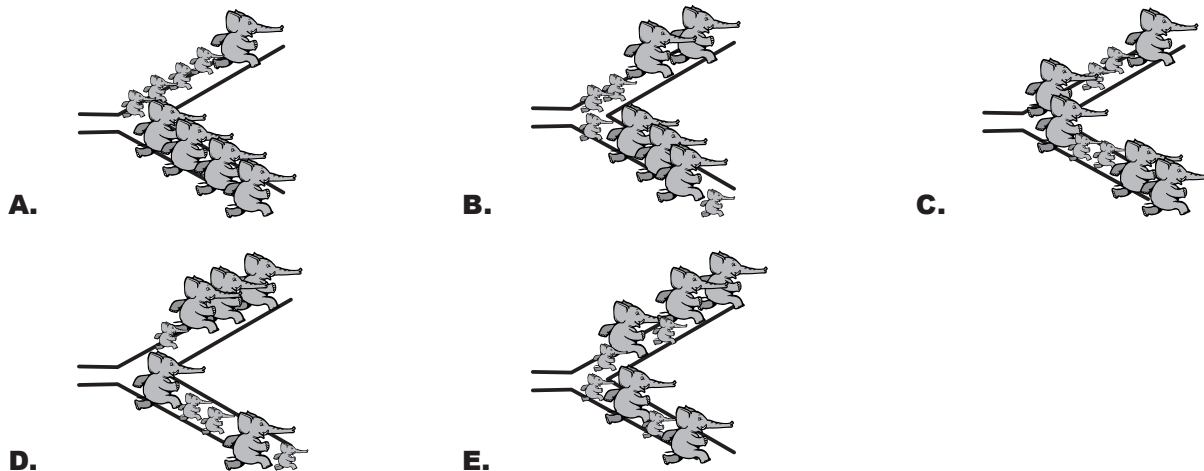
- A.  $\frac{1}{12}$                       B.  $\frac{1}{6}$                       C.  $\frac{1}{3}$                       D.  $\frac{1}{2}$                       E.  $\frac{5}{6}$

8.

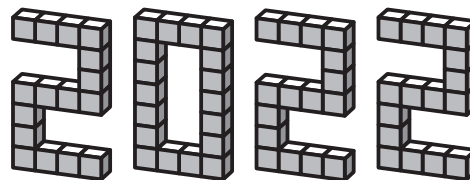


5 large elephants and 4 small elephants are walking single file in a line. They arrive at a junction and each elephant turns left or right.

Which situation below is **not** possible?



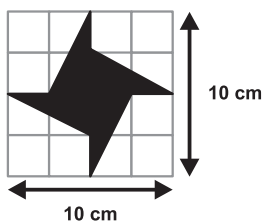
9. Masoud and his friends build the number 2022 with 66 cubes. Then they paint everything yellow.



How many cubes have exactly 4 yellow faces?

- A. 16      B. 30      C. 46      D. 54      E. 60

10. The area of the square is  $100 \text{ cm}^2$ .



What is the area of the black part?

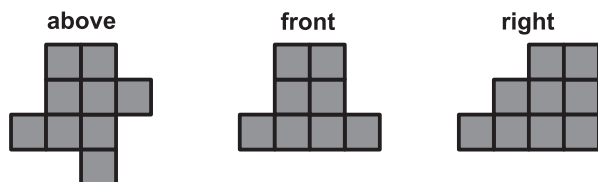
- A.  $20 \text{ cm}^2$       B.  $25 \text{ cm}^2$       C.  $30 \text{ cm}^2$       D.  $35 \text{ cm}^2$       E.  $40 \text{ cm}^2$

11. The year 2022 is special, because the digit 2 appears three times. For Eva it's the 3rd time in her life that the same digit appears three times in such a year.

At least how old does Eva turn in 2022?

- A. 18      B. 20      C. 22      D. 23      E. 134

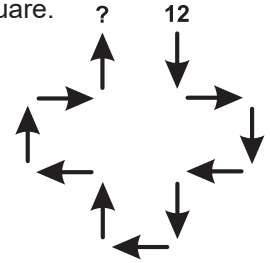
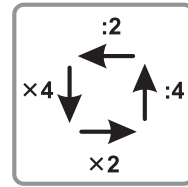
12. Nick Nick makes a structure out of cubes. The figure shows what his structure looks like from the top, front and right side.



What is the largest number of cubes Nick could have used?

- A. 18      B. 19      C. 20      D. 21      E. 22

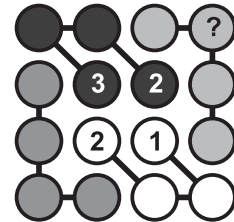
- 13.** Clara starts at the number 12 and follows the arrows. At each arrow she performs a calculation, according to the arrows in the square.



What number will she end up with at the question mark?

- A.** 3                      **B.** 6                      **C.** 12                      **D.** 24                      **E.** 48

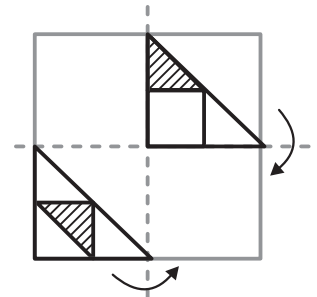
- 14.** Each row, column and set of 4 connected circles must contain the numbers 1, 2, 3 and 4.



What number has to be in the circle with the question mark?

- A.** 1                      **B.** 2                      **C.** 3                      **D.** 4                      **E.** you cannot know

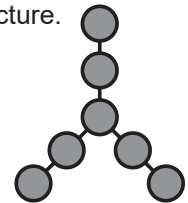
- 15.** The diagram shows a transparent piece of paper measuring 4 by 4 cm. The paper is now folded twice, on each of the dotted lines, so that a square of 2 by 2 cm is created.



What would the folded piece of paper look like?

- A.**      **B.**      **C.**      **D.**      **E.**

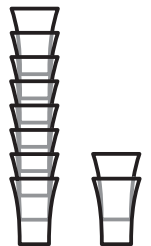
- 16.** Jessi writes the numbers 3, 4, 5, 6, 7, 8 and 9 in the circles, as shown in the picture. The sums of the three numbers in each line are equal.



What is the greatest possible outcome?

- A.** 16                      **B.** 18                      **C.** 20                      **D.** 22                      **E.** 28

- 17.** Several glasses are stacked on top of each other, as shown in the picture. The stack of 8 glasses is 42 cm tall. The stack of 2 glasses is 18 cm tall.



How tall is a stack of 6 glasses?

- A.** 22 cm                      **B.** 24 cm                      **C.** 28 cm                      **D.** 34 cm                      **E.** 40 cm

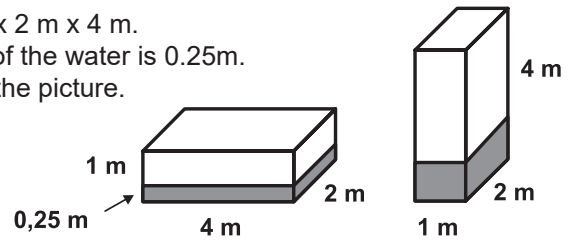
- 18.** Werner makes calculations by writing a number in each box. He always chooses four out of the numbers 2, 3, 4, 5 and 6. He always makes sure that the calculation is correct.



How many of the five numbers could he write in grey box?

- A.** 1                      **B.** 2                      **C.** 3                      **D.** 4                      **E.** 5

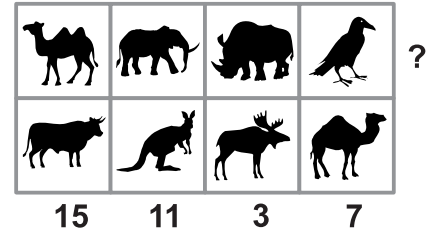
19. Simon has a water tank with dimensions 1 m x 2 m x 4 m. In the left picture you can see that the height of the water is 0.25m. Simon turns the tank on its side, as shown in the picture.



What will the height of the water be now?

- A. 0,25 m      B. 0,50 m      C. 0,75 m      D. 1 m      E. 1,25 m

20. In the picture you see 8 different animals. Each animal represents a different integer, greater than 0. Tamara adds the 2 numbers in each column and writes the result underneath. Then Tamara adds the 4 numbers in the top row.



What is the greatest possible result?

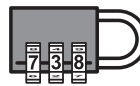
- A. 18      B. 19      C. 20      D. 21      E. 22

21. There are 4 villages in a straight line in the order A, B, C and D. The distance to the next village is always 10 km. 10 pupils live in village A, 20 pupils live in village B, 30 pupils live in village C and 40 pupils live in village D. The communities want to build a new school together. They want the total distance pupils have to travel to get to school to be as short as possible.

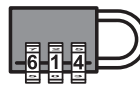
Where should they build the new school?

- A. A      B. B      C. In the middle of B and C.  
D. C      E. D

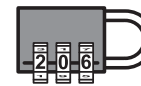
22. Hamid tries to guess a code. He gets 5 hints.



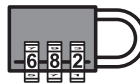
All of these digits are incorrect.



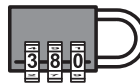
One of these digits is correct, but in the wrong place.



Two of these digits are correct, but in the wrong place.



One of these digits is correct and in the right place.

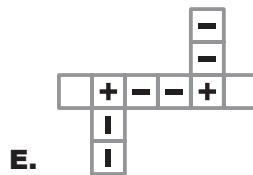
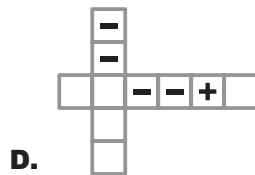
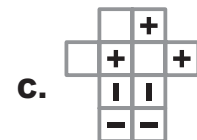
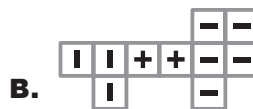
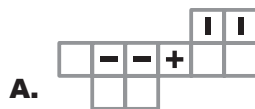


One of these digits is correct, but in the wrong place.

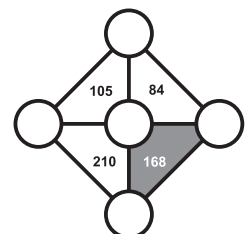
What is the correct code?

- A. 042      B. 046      C. 082      D. 604      E. 640

23. Which of the following flat-patterns **cannot** be folded to make the structure in the picture?



24. Selma writes the numbers 3, 4, 5, 6 and 7 in the five circles in the figure. Each triangle also contains a number, which is the result when she multiplies the numbers at the three vertices of the triangle.



What is the result if she adds the three numbers at the vertices of the grey triangle?

- A. 12      B. 14      C. 15      D. 17      E. 18