

W4 KANGOEROE Wereldwijde Wiskunde Wedstrijd

www.w4kangoeroe.nl

Good luck and most of
all have fun.

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calculator not
allowed



you may use
75 minutes



scrap paper
is allowed



results and awards
at school mid-May



23th March the
answers will be on
the website



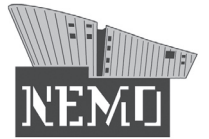
20th April the
explanations will be
on the website

wizBRAIN
havo 1, 2 & 3
vwo 1 & 2
vmbo 3 & 4 (excl. basisberoepsgerichte leerweg)



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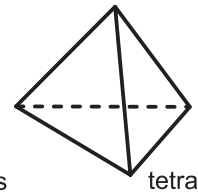
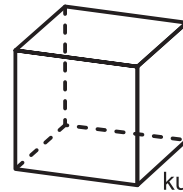
www.cito.nl



www.kijk.nl

1. Which calculation results in the largest outcome?
A. 2011^1 **B.** $2011 - 1$ **C.** 2011×1 **D.** $2011 + 1$ **E.** $2011 : 1$

2. How many faces do five cubes and three tetrahedra have together?



- A.** 42 **B.** 48 **C.** 50
D. 52 **E.** 56

3. Omar and Emma live in a street with 17 houses. Omar lives in the last house on the side with even house numbers. He lives at number 12. Before that there are no even numbers missing. Emma lives in the last house with an odd house number. Before that there are no odd numbers missing. At which number does Emma live?

- A.** 5 **B.** 7 **C.** 13 **D.** 17 **E.** 21

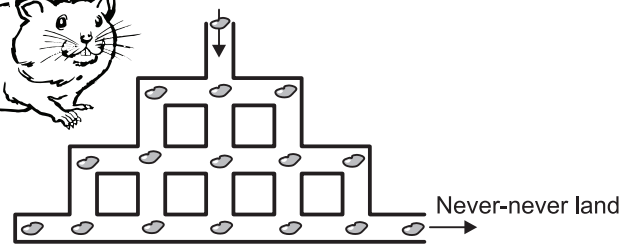
4. Emma's calculator doesn't function properly. It makes two mistakes: multiplying becomes division and adding becomes subtracting. Emma types $(12 \times 3) + (4 \times 2)$. What is the calculator's answer?

- A.** 2 **B.** 6 **C.** 12 **D.** 28 **E.** 44

5. A digital clock just jumped from 20:10 to 20:11. You have to wait a number of minutes to see another time only consisting of the digits 0, 1, 1 and 2 (in whatever order). How many minutes?

- A.** 40 **B.** 50 **C.** 55 **D.** 59 **E.** 60

6. A hamster walks through tunnels to Never-never land. The hamster doesn't walk through the same tunnel twice and does not pass the same crossing twice. There are 16 nuts; see picture.



What is the largest number of nuts the hamster can eat?

- A.** 12 **B.** 13 **C.** 14 **D.** 15 **E.** 16

7. On a road a zebra crossing has been made with alternate black and white stripes. The zebra crossing starts and ends with a white stripe. The stripes all are 50 cm wide. The zebra crossing has eight white stripes. What is the width of the road in meters?

- A.** 7 **B.** 7,5 **C.** 8 **D.** 8,5 **E.** 9

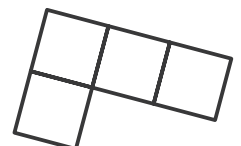
8. Cat Minny catches 12 fishes in three days. The second day she catches more fish than the first day and the third day she catches more fish than the second day. On the third day she catches less fish than on the first two days taken together. How many fishes does Minny catch on the third day?

- A.** 4 **B.** 5 **C.** 6 **D.** 7 **E.** 8

9. Sonia has got nine pearls. The pearls weigh 1, 2, 3, 4, 5, 6, 7, 8 and 9 grams. Sonia makes four rings with two pearls each. The pairs of pearls on these rings weigh 17, 13, 7 and 5 grams. How many grams does the remaining pearl weigh?

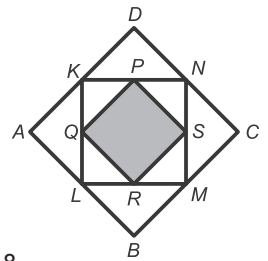
- A.** 1 **B.** 2 **C.** 3 **D.** 4 **E.** 5

10. The L- shape is made of four squares. With one extra square you can make a form that has a line of symmetry. In how many ways can you do that?



- A.** 1 **B.** 2 **C.** 3 **D.** 5 **E.** 6

11. Points K, L, M and N are the midpoints of the sides of a square $ABCD$. Points P, Q, R and S are the midpoints of the sides of a square $KLMN$. Square $PQRS$ has area 6 cm^2 . How many cm^2 is the area of $ABCD$ more than the area of $KLMN$?

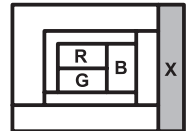


- A. 6 B. 9 C. 12 D. 15 E. 18

12. We make a list of all three-digit numbers whose digit sum equals 8. The first digit is unequal to zero. We add the largest and the smallest number of this list. What is the outcome?

- A. 707 B. 727 C. 907 D. 916 E. 1001

13. Each region is coloured in one of the colours red (R), green (G), blue (B) and orange (O). Two regions that have at least one point in common are of different colour. The colour of three regions is indicated. Which colour is X?



- A. blue B. green C. orange D. red E. you cannot tell

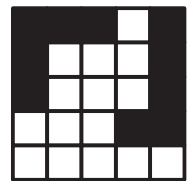
14. In a football tournament Emma's club scored three goals to one. The club won one match, drew one and lost one as well. What was the score of the match that was won?

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

15. $\frac{(2011 \times 2,011)}{(201,1 \times 20,11)} =$

- A. 0,01 B. 0,1 C. 1 D. 10 E. 100

16. Emma and Omar are playing a game. Taking turns they put a black piece on the board, neatly on the boxes. Each piece may be placed on each open spot. Right now there are two pieces on the board. There are still five pieces left and it is Emma's turn. If she puts the right piece on the board, she will win, because then Omar can't place another piece. Which piece should Emma put on the board?



- A. B. C. D. E.

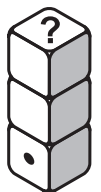
17. Omar is drawing a line segment DE of 2 cm. Emma should use it to draw triangle DEF having area 1 cm^2 . Also the triangle should be rectangular. In how many ways can Emma choose point F ?

- A. 2 B. 3 C. 4 D. 6 E. 8

18. From the sequence of numbers 17, 13, 5, 10, 14, 9, 12 and 16 two numbers are being deleted. The average didn't change by this. Which two numbers were deleted?

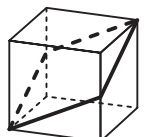
- A. 5 and 17 B. 9 and 16 C. 10 and 12 D. 10 and 14 E. 12 and 17

19. On a dice two opposite sides always have seven spots together. Three dice are on top of each other. In this pile the sides that are facing each other have five spots together on both positions. On the bottom dice you can see 1 spot. How many spots are on the top of the pile?



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

20. Four lines are being drawn on the faces of a cube, as shown in the figure alongside. These lines divide the outside of the cube in two equal parts. Then you unfold the cube. Which net can you get then?



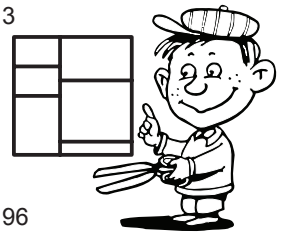
- A. B. C. D. E.

21. P and Q represent digits. The five-digit number 24P8Q can be divided by 4, 5 and 9. What is P + Q?

- A. 4 B. 5 C. 9 D. 10 E. 13

22. A square piece of paper is being cut into six rectangles. If you add the perimeters of all rectangles you will get 140 cm. How many cm² is the area of the square?

- A. 48 B. 64 C. 80 D. 144 E. 196



23. Isaac says: "I live more than twice as far from Max as from Oscar". Max says: "I live more than twice as far from Oscar as from Isaac". Oscar says: "I live more than twice as far from Max as from Isaac". At least two of them speak the truth. Who is lying?

- A. Isaac B. Max C. Oscar D. no one E. you cannot tell

24. Inside a square with 7 cm sides a square with 3 cm sides has been drawn. A square with 5 cm sides intersects these two squares. How many cm² is the black area more than the total grey area?

- A. 0 B. 15 C. 16 D. 24 E. you cannot tell



25. Dan joins a shooting contest. He misses a number of times and the other times he scores 5, 8 or 10 points. He scores as many times 8 points as he scores 10 points. In total Dan scores 99 points. Dan misses 25% of his shots. How many times did Dan shoot?

- A. 10 B. 12 C. 16 D. 20 E. 24

26. Emma and Omar have each written down a positive number. Emma's number is smaller than 1, Omar's number is larger than 1. Some calculations have been made using these two numbers. Which calculation has the largest outcome?

- A. multiplying the two numbers B. dividing Emma's number by Omar's number
 C. adding the two numbers D. subtracting Emma's number from Omar's number
 E. You cannot tell

27. Seven years ago Sonia's age was divisible by 8. In 8 years her age will be divisible by 7. Eight years ago Carlo's age was divisible by 7, in 7 years his age will be divisible by 8. Which of the following statements can be true?

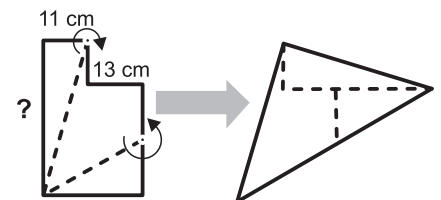
- A. Carlo is two years younger than Sonia B. Carlo is one year younger than Sonia
 C. Carlo and Sonia are the same age D. Carlo is one year older than Sonia
 E. Carlo is two years older than Sonia

28. Different letters represent different digits, equal letters represent equal digits. The digit 0 doesn't occur.

What is the smallest positive whole number that could be the outcome of $\frac{(K \times A \times N \times G \times O \times E \times R \times O \times E)}{(B \times R \times O \times O \times D)}$?

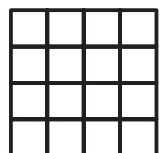
- A. 1 B. 2 C. 3 D. 5 E. 7

29. The figure alongside consists of two rectangles. The length of two of the horizontal sides is indicated: 11 cm and 13 cm. The figure is being cut into three pieces and then the pieces were put together into a triangle. How many cm is the side with a question mark?



- A. 36 B. 37 C. 38 D. 39 E. 40

30. Omar is playing a computer game on a square board with 4x4 squares. Fourteen squares turn red when he clicks them, the other two turn blue. Omar doesn't know which ones are the blue squares, but he does know that they have a side in common. Omar wants to find both blue squares with a minimum number of clicks. What is the least number of clicks to succeed for sure?



- A. 9 B. 10 C. 11 D. 12 E. 13