

WereldWijde WiskundeWedstrijd

W4Kangoeroe

Thursday

March 19th 2020



WWW.W4KANGOEROE.NL

Good luck and most of
all have fun.

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calculators are not allowed



you may use
75 minutes



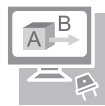
only a pencil, an eraser and scribbling paper are allowed



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



answers will be posted on the website about March 29th



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.

zwijse n

Breng leren tot leven
www.zwijsen.nl



www.e-nemo.nl

TEXAS INSTRUMENTS
www.education.ti.com



www.smart.be

Schoolsupport 

www.schoolsupport.nl

derekenwinkel 
Verstand van school(materialen)
www.derekenwinkel.nl/

ID Premiums Relatiegeschenken b.v.
Relatiegeschenken & Promotieartikelen
www.idpremiums.nl



www.mathplay.eu



www.ru.nl

platform wiskunde nederland
www.platformwiskunde.nl



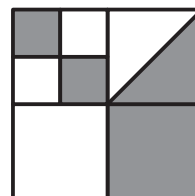
www.museumboerhaave.nl

1. Which outcome has the smallest value?
A. $1 + 23456$ **B.** $12 + 3456$ **C.** $123 + 456$ **D.** $1234 + 56$ **E.** $12345 + 6$
-
2. *Miguel* solves six math problems every day and *Lazaro* solves four math problems every day.
 How many days does it take *Lazaro* to solve the same number of problems as *Miguel* solves in four days?
A. 4 **B.** 5 **C.** 6 **D.** 7 **E.** 8
-

3. In which of the figures below is the marked angle the largest?



4. A large square is divided into smaller squares. In one of the smaller squares a diagonal is also drawn.



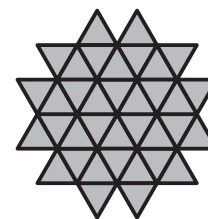
What fraction of the large square is white?

- A.** $\frac{1}{3}$ **B.** $\frac{3}{8}$ **C.** $\frac{4}{9}$ **D.** $\frac{1}{2}$ **E.** $\frac{4}{5}$
-
5. Which of these fractions has the largest value?
A. $\frac{8+5}{3}$ **B.** $\frac{8}{3+5}$ **C.** $\frac{3+5}{8}$ **D.** $\frac{8+3}{5}$ **E.** $\frac{3}{8+5}$
-
6. There are four teams in a soccer tournament. Each team plays every other team exactly once. In each match, the winner scores 3 points and the loser scores 0 points. In the case of a draw, both teams score 1 point.

After all matches have been played, which of the following total number of points is **impossible** for any team to have scored?

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

7. The diagram shows a shape made up of 36 identical triangles.



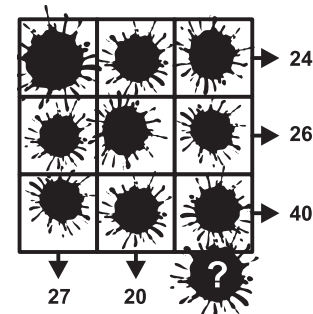
What is the smallest number of such triangles that could be added to the shape to turn it into a regular hexagon?

- A.** 10 **B.** 12 **C.** 15 **D.** 18 **E.** 24
-
8. From the list -5, -3, -1, 2, 4 and 6 *Skippy* chooses three different numbers such that the outcome of the multiplication of these three numbers is as small as possible.

What is this smallest possible outcome?

- A.** -200 **B.** -120 **C.** -90 **D.** -48 **E.** -15
-

9. Alongside you see a 3×3 square. A number is written in each of the nine cells. The numbers are not visible because they are covered in ink. However, the sum of the numbers in each row and the sum of the numbers in two of the columns are all known, as shown by the arrows on the diagram.



What is the sum of the numbers in the third column?

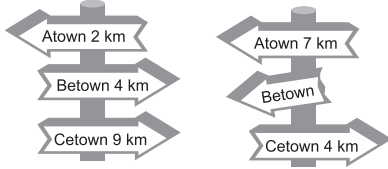
- A.** 41 **B.** 43 **C.** 44 **D.** 45 **E.** 47

- 10.** If *John* goes to school by bus and walks back, he travels for 3 hours. If he goes by bus both ways, he travels for 1 hour.

How long does it take him if *John* walks both ways?

- A.** 3,5 hours **B.** 4 hours **C.** 4,5 hours **D.** 5 hours **E.** 5,5 hours

- 11.** The shortest path from *Atown* to *Cetown* runs through *Betown*. The two signposts shown are set up along this path.



What distance was written on the broken sign?

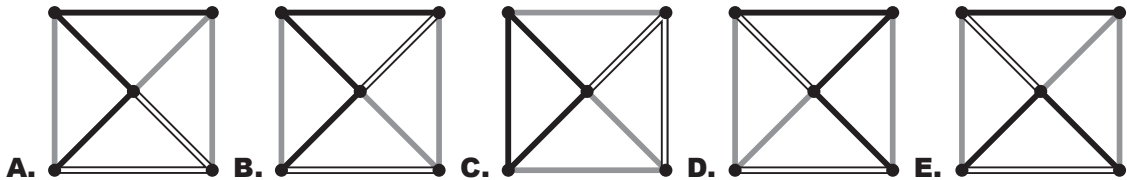
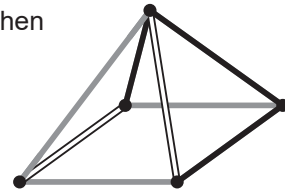
- A.** 1 km **B.** 3 km **C.** 4 km **D.** 5 km **E.** 9 km

- 12.** *Anna* has a goal: she wants to walk 5 km on average each day in March. At bedtime on 16th March, she realises that she had walked 95 km so far.

How many km does *Anna* need to walk on average for the remaining days of the month to achieve her target?

- A.** 3,1 **B.** 3,6 **C.** 4 **D.** 5 **E.** 5,4

- 13.** Which of the following figures shows what you would see when the pyramid in the diagram is viewed from above?

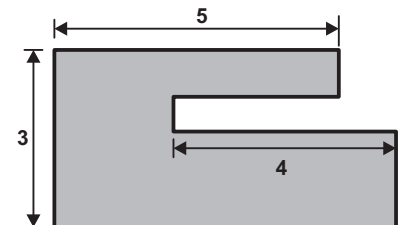


- 14.** Every pupil in a class either swims or dances or does both. Three fifths of the class swim and three fifths dance. Five pupils both swim and dance.

How many pupils are in the class?

- A.** 15 **B.** 20 **C.** 25 **D.** 30 **E.** 35

- 15.** *Sacha's* garden has a special shape shown in the diagram. All the sides are either parallel or perpendicular to each other. Some of the dimensions are shown.



What is the perimeter of *Sacha's* garden?

- A.** 22 **B.** 23 **C.** 24 **D.** 25 **E.** 26

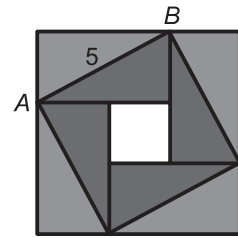
- 16.** In the final of a dance competition there are five dancers. Each of the three members of the jury gives each dancer a score of 0, 1, 2, 3 or 4 points. No two dancers get the same mark from any individual judge. *Adam* knows all sums of the scores and a few single scores, as shown.

	<i>Adam</i>	<i>Berta</i>	<i>Clara</i>	<i>David</i>	<i>Emil</i>
I	2	0			
II		2	0		
III					
total	7	5	3	4	11

How many points did *Adam* get from judge III?

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

- 17.** A large square consists of four identical rectangles and a small square. The area of the large square is 49 cm^2 and the length of the diagonal AB of one of the rectangles is 5 cm .

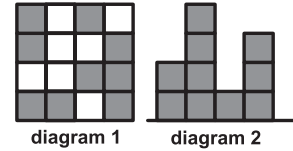


What is the area of the small square?

- A.** 1 cm^2 **B.** 4 cm^2 **C.** 9 cm^2 **D.** 16 cm^2 **E.** 25 cm^2

- 18.** Irene made a 'city' with identical wooden cubes.

Diagram 1 shows the view from above the city.
Diagram 2 shows the view from one of the sides;
however, it is not known from which side this view was taken.



What is the largest number of wooden cubes that Irene could have used for her city?

- A.** 21 **B.** 22 **C.** 23 **D.** 24 **E.** 25

- 19.** Twelve coloured marbles are arranged in a row. There are 3 blue marbles, 2 yellow marbles, 3 red marbles and 4 green marbles but not in that order. There is a yellow marble at one end and a red marble at the other end. The red marbles are all touching. The green marbles are also all touching. The tenth marble from the left is blue.

What colour is the marble sixth from the left?

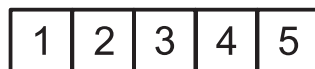
- A.** green **B.** yellow **C.** blue **D.** red **E.** can be both red and blue

- 20.** Werner's salary is 20% of his boss's salary.

By what percentage is his boss's salary larger than Werner's salary?

- A.** 80% **B.** 120% **C.** 180% **D.** 400% **E.** 520%

- 21.** Aisha has a strip of paper with the numbers 1, 2, 3, 4 and 5 written in five cells as shown (see diagram).



She folds the piece of paper a few times, so that the cells are on top of each other. The folded piece of paper now has 5 layers.

Which of the following configurations from top layer to bottom layer, is **not** possible to obtain?

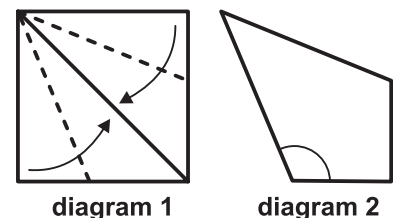
- A.** 3, 5, 4, 2, 1 **B.** 3, 4, 5, 1, 2 **C.** 3, 2, 1, 4, 5 **D.** 3, 1, 2, 4, 5 **E.** 3, 4, 2, 1, 5

- 22.** Andrew buys 27 identical small cubes. Each cube has two adjacent faces painted red, the other faces are white. He uses all of these small cubes to build a large cube.

What is the largest number of completely red faces the large cube can have?

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

- 23.** Zaida took a square piece of paper and folded two of its sides to the diagonal (see diagram 1), to obtain a quadrilateral (see diagram 2).



What is the size of the largest angle shown in diagram 2?

- A.** $112,5^\circ$ **B.** 120° **C.** 125° **D.** 135° **E.** 150°

