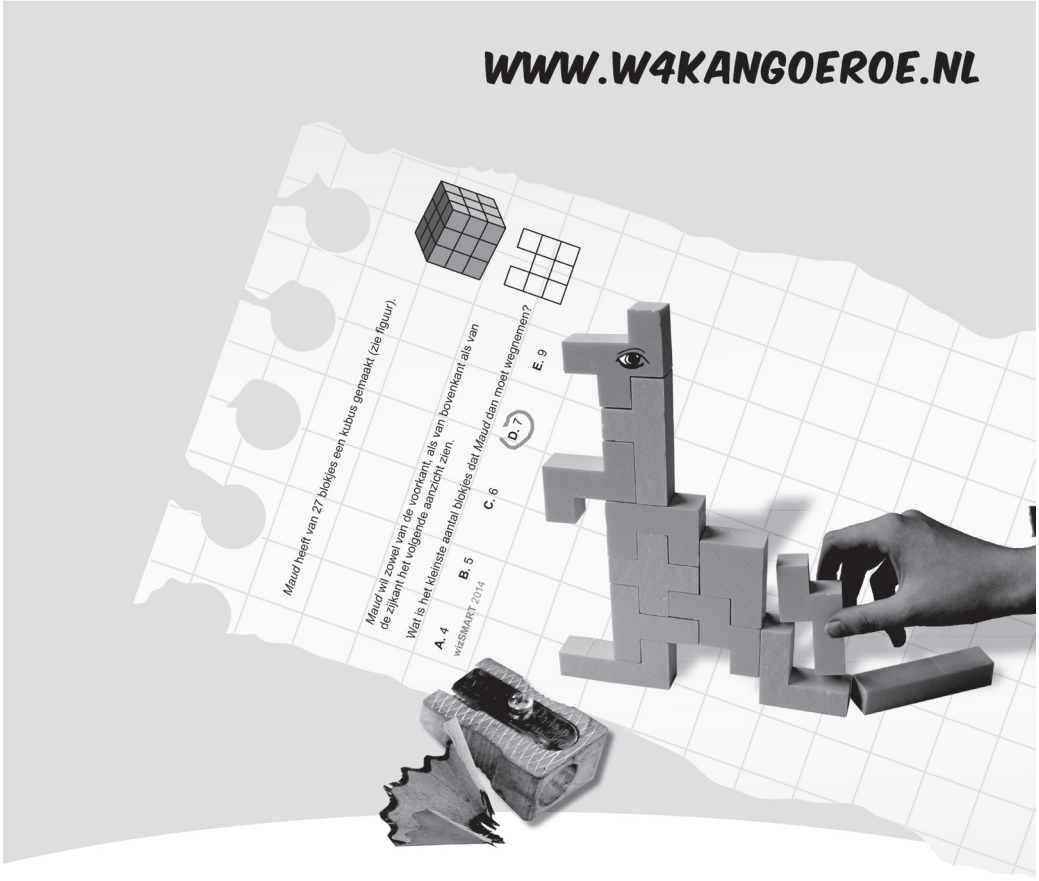
wizBRAIN 2016

WERELDWIJDE WISKUNDEWEDSTRIJD
W4KANGOEROE

THURSDAY MARCH 17TH 2016

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 medio May

answers will be posted on the website March 26th

solutions will be posted on the website April 22th

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

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1. How many **whole** numbers are there between the real numbers 3.17 and 20.16?

A. 15 **B.** 16 **C.** 17 **D.** 18 **E.** 19

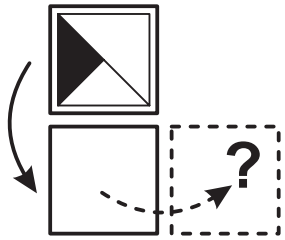
2. Which of the following traffic signs has the largest number of lines of symmetry?

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

3. *Jane* has to add 26 to a number. By accident, she has subtracted 26 instead.
The result she got was -14.
What result should she have gotten?

A. 28 **B.** 32 **C.** 36 **D.** 38 **E.** 42

4. *John* turns the card over, about the bottom edge, see figure.
After this he turns the card over, about the right-hand edge.



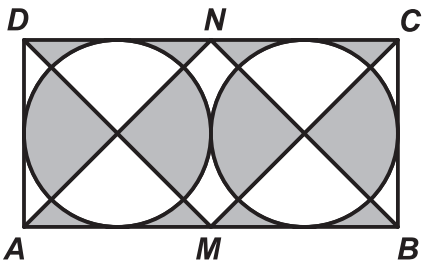
What will *John* see then?

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

5. 60% of the teachers ride a bicycle to school. That is 45 teachers.
12% of the teachers drive a car to school.
How many teachers go to school by car?

A. 4 **B.** 6 **C.** 9 **D.** 10 **E.** 12

6. *ABCD* is a rectangle.
M and *N* are the midpoints of sides *AB* and *CD*.
The circles touch the sides of the rectangles and also each other. *AB* = 20 cm.



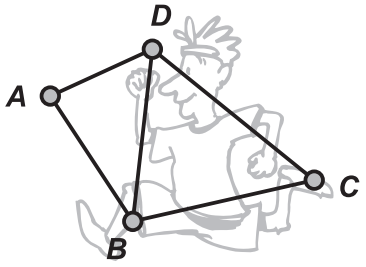
How many cm² are grey?

A. 50 **B.** 100 **C.** 120 **D.** 150 **E.** 200

7. *Alex* has two ropes, one of 1 meter and one of 2 meter.
He will cut the ropes in a number of pieces of the same length.
Which number of pieces is he **not** able to obtain this way?

A. 8 **B.** 9 **C.** 12 **D.** 15 **E.** 18

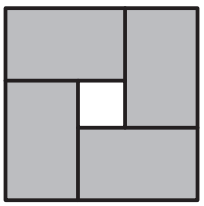
8. The towns *A*, *B*, *C*, and *D* are connected by roads, as shown in the figure. A running contest is being organized.
The run starts in *B* and ends in *D*.
Runners take each road exactly once.



How many different routes are possible for this run?

A. 2 **B.** 4 **C.** 6 **D.** 8 **E.** 10

9. Four identical rectangles fit exactly in a square, as in the figure.
The perimeter of each rectangle is 16 cm.



What is the perimeter of the square, in cm?

A. 16 **B.** 20 **C.** 24 **D.** 28 **E.** 32

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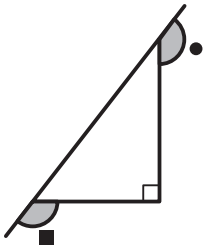
10. The figure shows a right-angled triangle and two more angles ■ and ● .



How big are the angles ■ and ● together?

A. 150º **B.** 180º **C.** 270º **D.** 320º **E.** 360º

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11. A box contained 49 blue beads and a red one.
Petra took a number of beads out of the box. Now 90% of the beads in the box is blue.
How many beads did *Petra* take out?

A. 4 **B.** 10 **C.** 29 **D.** 39 **E.** 40

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12. *Meryem* has 555 piles of nine bricks. She makes one big pile out of this.
Then she makes small piles of fives bricks out of this pile.

How many piles did she make?

A. 45 **B.** 111 **C.** 555 **D.** 900 **E.** 999

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13. Kangaroos *Skippy* and *Skappy* start jumping at the same time from the same spot in the same direction. They both make one jump per second. *Skippy* makes jumps of 6 meter only, *Skappy* starts with a 1 meter jump, then makes a 2 meter jump, then a 3 meter jump, etcetera. *Skappy* will thus be behind *Skippy* from the start, but will, after a number of jumps, catch up with *Skippy*.

How many jumps will *Skappy* have made by then?

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

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14. At a tennis tournament the winner of a match will advance to the next round, the loser is eliminated. Eight tennis players play a tournament. The results of the first two rounds (not in the right order) are: *Bart* beat *Albert*, *Carel* beat *Dirk*, *Gerard* beat *Harm*, *Gerard* beat *Evert*, *Carel* beat *Bart* and *Evert* beat *Frits*.

Which two players played the final?

A. *Carel* and *Gerard* **B.** *Carel* and *Dirk* **C.** *Bart* and *Carel*
D. *Gerard* and *Evert* **E.** *Gerard* and *Harm*

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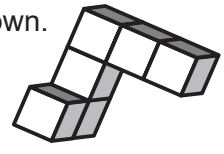
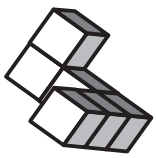
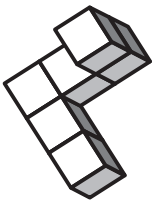
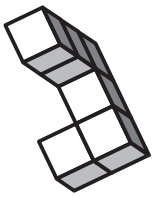
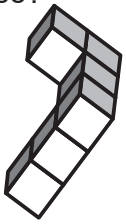
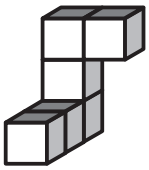
15. *Alisha* has glued some white cubes together. She produced the block shown.
She looks at the block from different angles.



Which of the following pictures will she **not** be able to see?

A. 
B. 
C. 
D. 
E. 

24. *Little Red Riding Hood* is bringing cakes to three grandmothers. *Little Red Riding Hood* starts out with a full basket, but each time just before arriving at a grandmother, *the wicked wolf* eats half the remaining cakes from the basket. When *Little Red Riding Hood* leaves the third grandmother, the cakes are finished. Each grandmother got the same number of cakes.

By which number can *Little Red Riding Hood* certainly divide the number of cakes she started out with?

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

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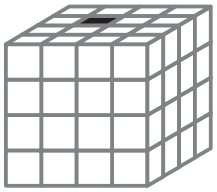
25. The cube is made out of 64 small cubes. Exactly one of the small cubes is black. One day all neighbouring cubes of a black cube also turn black (two cubes are neighbouring if they share a face). The next day this happens again.



How many black cubes are there after that?

A. 11 **B.** 13 **C.** 15 **D**. 16 **E.** 17

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26. *Martin* has written down some different positive integers. When he multiplies the smallest two, the result is 16. Multiplying the largest two results in 225.

What will *Martin* get if he adds all numbers?

A. 42 **B.** 44 **C.** 58 **D.** 72 **E.** 243

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27. A train has five carriages. Each carriage contains at least one passenger. Two passengers are called companions if they sit in the same carriage or in two adjacent carriages. Each passenger has exactly five or exactly ten companions.

How many passengers ride this train?

A. 13 **B.** 15 **C.** 17 **D.** 20 **E.** impossible to tell

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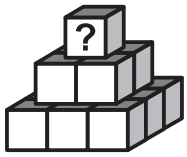
28. On each cube of this pile, *Harry* has written a positive integer. The numbers are all different. Adding the numbers in the bottom layer, you obtain 50. The number on a higher cube is obtained by adding the numbers on the four cubes underneath.



What is the largest number that could be written on the top cube?

A. 80 **B.** 98 **C.** 104 **D.** 110 **E.** 118

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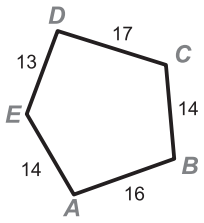
29. *Aïssa* would like to draw five circles with the five vertices *A*, *B*, *C*, *D*, and *E* of the pentagon as centres. The circles should touch each other on the sides of the pentagon. The lengths of the sides of the pentagon are shown in the figure.



Which of vertices *A*, *B*, *C*, *D*, and *E* will be the centre of the largest circle that *Aïssa* will draw?

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

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30. A 3 by 3 by 3 cube is made out of smaller cubes, 15 black ones and 12 white ones. Five of the faces of the large cube look like this:

What will the sixth face look like?

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