EUROPEAN KANGAROO
ARITHMETIC- AND MATHEMATICSCONTEST

Welcome to the Kangaroo, great that you join in!

* You have 75 minutes. There are 30 questions. With every question one of the five options is the correct one.

* Do what you can, don't be disappointed if you cannot answer everything.

* You are not allowed to use a calculator; of course you may use scribbling paper.

* Use a pencil to fill in the answer sheet carefully.

* About scoring points:
> * You start with 30 free points.
> * Question   1 - 10: you will get 3 points for a correct answer;
> you will lose ¾ points for an incorrect one.
> * Question 11 - 20: you will get 4 points for a correct answer;
> you will lose 1 point for an incorrect one.
> * Question 21 - 30: you will get 5 points for a correct answer;
> you will lose 1¼ points for an incorrect one.
> * If you don't answer a question, you neither gain nor lose points.

* The answers will be on the website from March 23nd,
www.math.kun.nl/kangoeroe
* The scores and the prizes will arrive at schools in week 17.

Good luck and most of all: have fun!!

version 1
the Netherlands: 7 & 8 primary school and 1 & 2 vmbo
Flanders: 5 & 6 primary school and bso 1st degree

01. $1000 - 100 + 10 - 1 = ?$

A. 111 **B.** 900 **C.** 909 **D.** 990 **E.** 999

02. Esther has 16 cards: 4 with a ◇, 4 with a ⬤, 4 with a ◎ and 4 with a ◈ . She places these cards in a square. In every row from left to right and in every column from top to bottom every symbol has to be present. On the right you can see how Esther started. Which symbol will be in the place with the question mark?
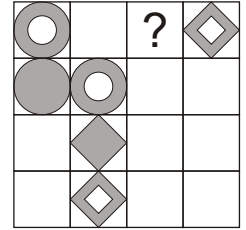
A. ◇ **B.** ◎ **C.** ⬤ **D.** ◈
E. that is impossible

03. $(10 \times 10) \times (20 \times 80) = ?$

A. 200 x 800 **B.** 200 x 8000 **C.** 200 x 80000 **D.** 2000 x 8000
E. 2000 x 80000

04. How many hours are 360000 seconds?

A. 10 **B.** 12 **C.** 24 **D.** 36 **E.** 100

05. Sietse collected 2004 pinecones. Five fit exactly in one plastic bag. How many bags can Sietse fill?

A. 5 **B.** 400 **C.** 401 **D.** 402 **E.** 404

06. Hielke used tracing paper and made the figure on the right. He places this on one of the five following figures, and then he sees a figure that is completely black. On which one did he place his figure?
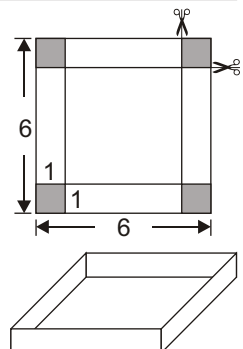
A. **B.** **C.** **D.** **E.**
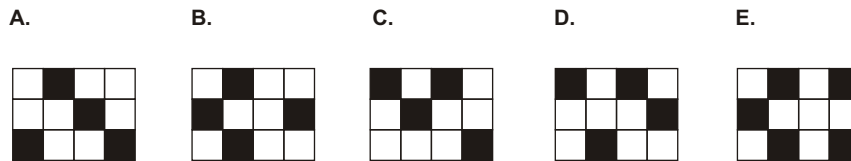
07. Esther divides 2004 by each of the following numbers. For one of these numbers the remainder is not zero. Which number is this?

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

08. Kangaroo Skippy has just eaten 73 grass nuts with his father and mother.
Father Kangaroo ate 5 more than mother. Skippy ate 12 grass nuts.
How many grass nuts did mother eat?
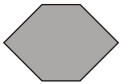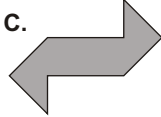
A. 27 **B.** 28 **C.** 31 **D.** 33 **E.** 56
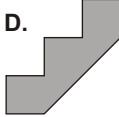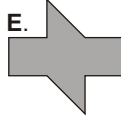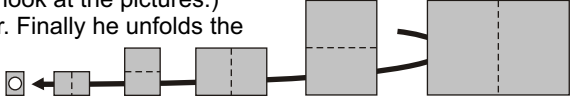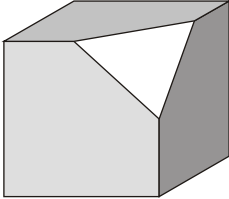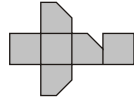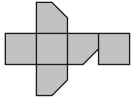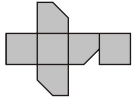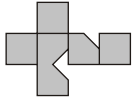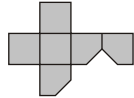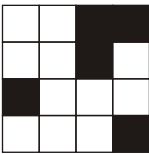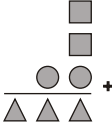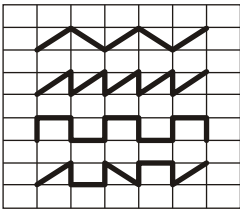
09. Nine bus stops are at equal distances from each other along a road.
The first and the third stop are 600 meters apart. How many meters are there between the first and the last stop?

A. 1200 **B.** 1500 **C.** 1800 **D.** 2400 **E.** 2700

10. A box is made from a square piece of cardboard. First a little square measuring 1 cm by 1 cm is cut off from every corner. Then the remaining 'flaps' are folded upright. How many cm³ is the content of this box?

A. 16 **B.** 24 **C.** 25 **D.** 30 **E.** 36

11. The two identical cardboard pieces drawn on the right are on a table. You are only allowed to slide them over the table. You are not allowed to pick them up! Which of the following figures is not possible to make?

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

12. Sietse folds a sheet of paper five times in two. (Have a look at the pictures.) Then he makes a hole in the middle of the folded paper. Finally he unfolds the paper again. How many holes are there in the paper?

A. 6 **B.** 10 **C.** 16 **D.** 20 **E.** 32

13. A corner is cut off from a cardboard cube. Then the cube is cut open and is unfolded. Which of the following nets can you get?

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

14. 3 apples and 2 pears weigh 255 gram together. 2 apples and 3 pears weigh 285 gram together. All apples weigh the same. All pears have the same weight. How many grams do 1 apple and 1 pear weigh together?

A. 102 **B.** 104 **C.** 105 **D.** 108 **E.** 110

15. Esther has to guess a number. The four Teletubbies all said something about the number.
Po: ' The number is even'
Tinky-Winky: 'The number is 15'
Dipsy: 'The number is 9'.
La-La: 'The number is only divisible by 1 and itself without a remainder.'
Exactly one of Po and Tinky-Winky spoke the truth. And also of Dipsy and La-La only one spoke the truth. What number is it that Esther has to guess?

A. 1 **B.** 2 **C.** 3 **D.** 9 **E.** 15

16. Hielke wants to colour one or a few more boxes black in the diagram on the right. This has to be done in such a way that two halves will appear that are each other's reflection, which means that after folding black will be on black (so white will be on white too). How many boxes should Hielke colour black at least?

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

17. Different shapes represent different figures, identical shapes represent equal figures. Which figure is represented by the square?

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

18. Four kangaroos Fin, Pin, Rin and Tin are jumping across a square of identical rectangular tiles. You can see their routes on the right.
Fin jumped 25 m.
Pin jumped 37 m.
Rin jumped 38 m.
How many meters did Tin jump?

Fin
Pin
Rin
Tin

A. 27 **B.** 30 **C.** 35 **D.** 36 **E.** 40

19. Kangaroo land has a very special climate indeed. It always rains on Monday and Wednesday, and it is always misty on Saturday. The sun shines on all other days. Sietse has a 44-day holiday in Kangaroo land. His plane arrives at midnight and after his holiday it departs again at midnight. He would like to have as many sunny days as possible. What should be the first day of his holiday then?

A. Monday **B.** Tuesday **C.** Wednesday **D.** Thursday **E.** Friday

20. Two numbers add up to 77. When you multiply one number by 8 and the other number by 6, you will get the same answer. Which number is the larger of the two numbers?

A. 23 **B.** 33 **C.** 43 **D.** 44 **E.** 54

21. In a CD store two CDs are the same price. One of the CDs decreases 5% in price; the other one increases 15%. This causes their prices to differ by 6 euro. How many euros will the more expensive CD be?

A. 1,50   **B.** 6   **C.** 28,50   **D.** 30   **E.** 34,50

22. Sietse has toy kangaroos: 108 red ones and 180 green ones. He will put them in plastic bags. Every bag has the same number of kangaroos, and all are the same colour. What is the least number of bags, which Sietse will need?

A. 1   **B.** 8   **C.** 18   **D.** 36   **E.** 288

23. The diagram on the right consists of 25 squares of 1 cm^2. How many cm^2 is the area of the grey part?
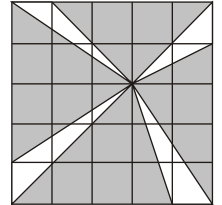
**A.** 15   **B.** 16   **C.** 17,5   **D.** 20   **E.** 22,5

24. Hielke and Sietse have been plucking apples and pears together, 70 fruits in total. 5/9 of all fruit that Hielke has plucked were apples. 2/17 of all fruit that Sietse has plucked were pears. How many fruits has Hielke plucked?

A. 18   **B.** 27   **C.** 36   **D.** 45   **E.** 54

25. During a maths summer camp there was a contest with 10 exercises. Each correct answer scored 5 points, for each wrong answer 3 points were subtracted. Everybody answered all questions. Hielke scored 34 points, Sietse 10 points and Esther 2 points. How many correct answers did the three of them have together?

A. 13   **B.** 15   **C.** 17   **D.** 18   **E.** 21

26. Esther wants to build a cube using bricks. All bricks are 3 dm long, 2 dm wide and 2 dm high. What is the least number of bricks, which she will need?
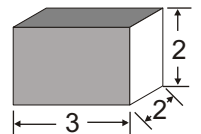
A. 12   **B.** 18   **C.** 24   **D.** 36   **E.** 60

27. In the first box there is a 7 and in the ninth box there is a 6. You have to write a number in every other box. But not just any number. You have to make sure that the numbers in any three consecutive boxes make 21. What number do you have to write in the second box?
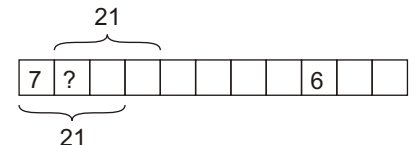
A. 6   **B.** 7   **C.** 8   **D.** 10   **E.** 21

28. The fishing net alongside is made of threads and knots. You throw the net into the sea, and a remarkable fish known as "biter through" bites threads. You are only able to get the ruined net out of the water in one go, without a thread being left in the water. What is the highest number of threads the fish can have bitten through?

thread →
knot →
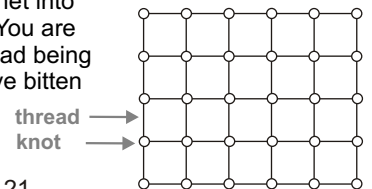
A. 17   **B.** 18   **C.** 19   **D.** 20   **E.** 21

29. In every box of the staircase a number is written according to the regularity shown in the figure. You don't know the height of the staircase. What number cannot be in the top box?
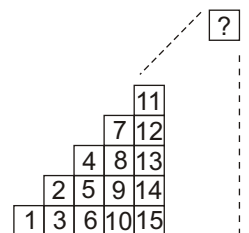
A. 79   **B.** 121   **C.** 171   **D.** 211   **E.** 277

30. We will have a look at the number that consists of 2004 ones: 111……1. Hielke divides this number by 3. How many zeros will the outcome have?

A. 665   **B.** 667   **C.** 668   **D.** 669   **E.** 670

5 points