Three point problems

1. What is the time 17 hours after 17:00?

A: 8:00 B: 10:00 C: 11:00 D: 12:00 E: 13:00

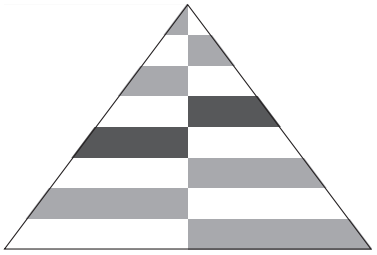
Israel

2. A group of girls stands in a circle. Antonia is the fourth on the left from Bianca. On the right there are six girls between Bianca and Antonia. How many girls are in the group?

A: 9 B: 10 C: 11 D: 12 E: 13

Schweiz

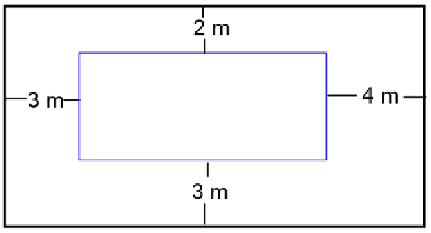
3. The diagram shows a stripy isosceles triangle and its height. Each stripe has the same height. What fraction of the area of the triangle is white?



A: $\frac{1}{2}$ B: $\frac{1}{3}$ C: $\frac{2}{3}$ D: $\frac{3}{4}$ E: $\frac{2}{5}$

Slovakia

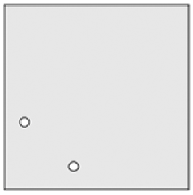
4. The diagram shows two rectangles whose sides are parallel. What is the difference in the lengths of the perimeters of the two rectangles?

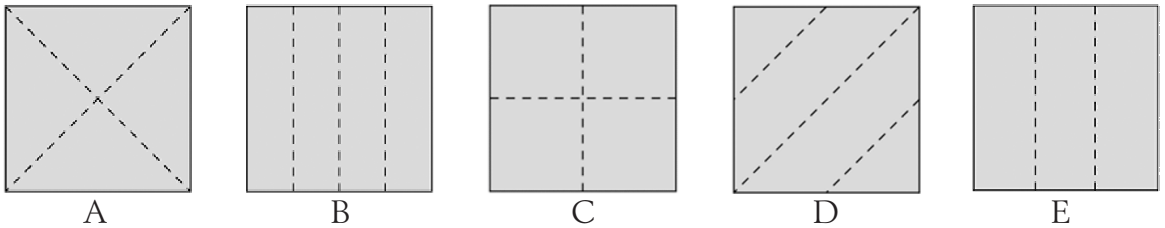


A: 12 m B: 16 m C: 20 m D: 21 m E: 24 m

Norway

5. Bob folded a piece of paper twice and then cut one hole in the folded piece of paper. When he unfolded the paper, he saw the arrangement shown in the diagram.
How had Bob folded his piece of paper?





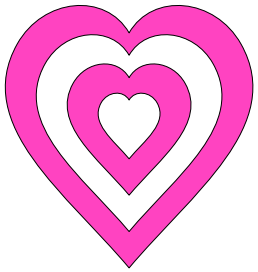
Norway

6. The sum of three different positive integers is 7. What is the product of these three integers?

A: 12 B: 10 C: 9 D: 8 E: 5

Catalonia

7. The diagram shows four overlapping hearts. The areas of the hearts are 1 cm^2, 4 cm^2, 9 cm^2 and 16 cm^2. What is the shaded area?



A: 9 cm^2 B: 10 cm^2 C: 11 cm^2 D: 12 cm^2
E: 13 cm^2

Belgium

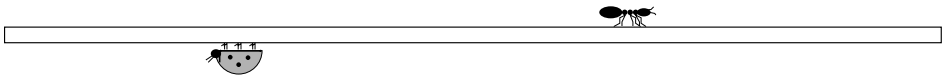
8. Yvonne has 20 €. Each of her four sisters has 10 €. How many euros does Yvonne have to give to each of her sisters so that each of the five girls has the same amount of money?

A: 2 € B: 4 € C: 5 € D: 8 € E: 10 €

Mexico

Four point problems

9. The ant started at the left end of a pole and crawled $\frac{2}{3}$ of its length. The beetle started at the right end of the same pole and crawled $\frac{3}{4}$ of its length. What fraction of the length of the pole are the ant and the beetle now apart?



A: $\frac{3}{8}$ B: $\frac{1}{12}$ C: $\frac{5}{7}$ D: $\frac{1}{2}$ E: $\frac{5}{12}$

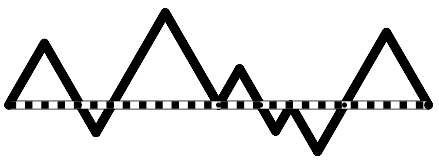
Germany

10. One sixth of the audience in a children's theatre were adults. Two fifths of the children were boys. What fraction of the audience were girls?

A: $\frac{1}{2}$ B: $\frac{1}{3}$ C: $\frac{1}{4}$ D: $\frac{1}{5}$ E: $\frac{2}{5}$

Slovakia

11. In the diagram, the dashed line and the black path form seven equilateral triangles. The length of the dashed line is 20. What is the length of the black path?



A: 25 B: 30 C: 35 D: 40 E: 45

Catalonia

12. Four cousins Ema, Iva, Rita and Zina are 3, 8, 12 and 14 years old, although not necessarily in that order. The sum of the ages of Zina and Ema is divisible by 5. The sum of the ages of Zina and Rita is also divisible by 5. How old is Iva?

A: 14 B: 12 C: 8 D: 5 E: 3

Slovakia

13. This year there were more than 800 runners participating in the Kangaroo Hop. Exactly 35 % of the runners were women and there were 252 more men than women. How many runners were there in total?

A: 802 B: 810 C: 822 D: 824 E: 840

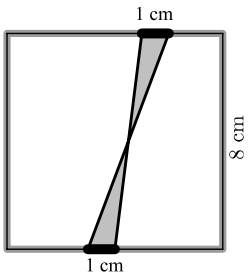
Germany

14. Write a number in each box of the diagram shown. There are already numbers in two of the boxes. The sum of all the numbers should be equal to 35, the sum of the numbers in first three boxes to equal 22, and the sum of the numbers in the last three boxes to equal 25. What is the product of the numbers written in the grey boxes?

A: 63 B: 108 C: 0 D: 48 E: 39

Poland

15. Two segments, each 1 cm long, are marked on opposite sides of a square of side 8 cm. The ends of the segments are joined as shown in the diagram. What is the shaded area?



A: 2 cm^2 B: 4 cm^2 C: 6,4 cm^2 D: 8 cm^2 E: 10 cm^2

Catalonia

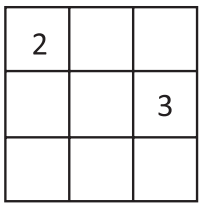
16. Tycho wants to prepare a schedule for his jogging. He wants to jog exactly twice a week, and on the same days every week. He never wants to jog on two consecutive days. How many such schedules are there?

A: 16 B: 14 C: 12 D: 10 E: 8

Netherlands

Five point problems

17. It should be a number in each cell so that the sum of the numbers in any two cells that share an edge are the same. It has already two numbers, as shown in the diagram. What is the sum of all the numbers in the table?



A: 18 B: 20 C: 21 D: 22 E: 23

Belarus

18. Ten kangaroos stood in a line as shown in the diagram. At some point, two kangaroos standing side by side and facing each other exchanged places by jumping past each other. This was repeated until no further jumps were possible. How many exchanges were made?

A: 15 B: 16 C: 18 D: 20 E: 21

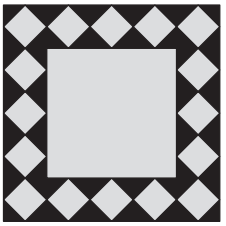
Belarus

19. The numbers of degrees in the angles in a triangle are three different integers. What is the minimum possible sum of its smallest and largest angles?

A: 61° B: 90° C: 91° D: 120° E: 121°

Russia

20. The tablecloth has a regular pattern, as shown in the diagram. What percentage of the tablecloth is black?



A: 16 B: 24 C: 25 D: 32 E: 36

Germany

21. Each digit in the sequence starting 2, 3, 6, 8, 8 ... is obtained in the following way:

The first two digits are 2 and 3 and afterwards each digit is the last digit of the product of the two preceding digits in the sequence.

What is the 2017th digit in the sequence?

A: 2 B: 3 C: 4 D: 6 E: 8

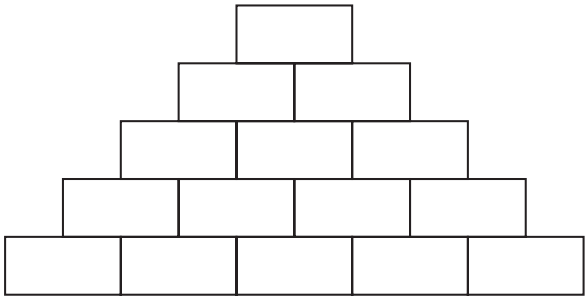
Bulgaria

22. Two runners are training on a 720 metre circular track. They run in opposite directions, each at constant speed. The first runner takes four minutes to complete the full loop and the second runner takes five minutes. How many metres does the second one run between two consecutive meetings of the two runners?

A: 355 B: 350 C: 340 D: 330 E: 320

Italy

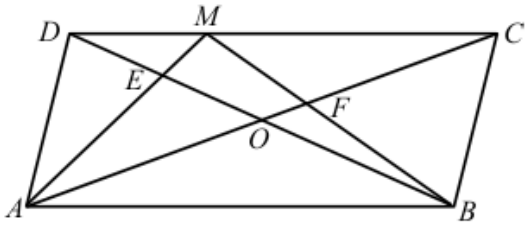
23. It should be a positive integer in each box in the diagram so that each number above the bottom row is the sum of the two numbers in the boxes immediately underneath. What is the largest number of odd numbers that can be written in the diagram?



A: 5 B: 7 C: 8 D: 10 E: 11

Germany

24. The diagram shows parallelogram $ABCD$ with area S. The intersection point of the diagonals of the parallelogram is O. The point M is marked on DC. The intersection point of AM and BD is E and the intersection point of BM and AC is F. The sum of the areas of the triangles AED and BFC is 1/3 S. What is the area of the quadrilateral $EOFM$, in terms of S?



A: $\frac{1}{6}$S B: $\frac{1}{8}$S C: $\frac{1}{10}$S D: $\frac{1}{12}$S E: $\frac{1}{14}$S

Bulgaria

Svarsblankett

Markera ditt svar i rätt ruta

Uppgift	A	B	C	D	E	Poäng
1						
2						
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Namn:.....

Klass:.....