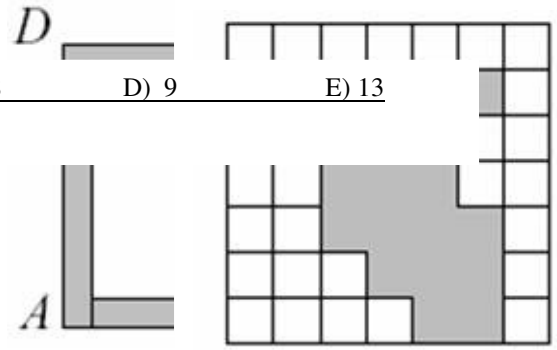
A) 100 cm^2 B) 200 cm^2 C) 160 cm^2 D) 400 cm^2 E) 80 cm^2



A) 6 B) 7 C) 8 D) 9 E) 13

Problems 3 points each

1. Which of the following numbers is greatest?

A) 2 + 0 + 0 + 3 B) 2 x 0 x 0 x 3 C) (2 + 0) x (0 + 3) D) 2

2. Zosia is drawing flowers of different colors. The first flower is blue, then yellow, and so on in the same order. What is the color of the twenty ninth flower dra

A) Blue B) White C) Red D) Pink E) Yellow

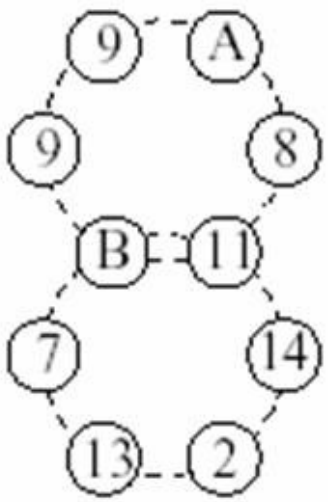
3. How many integers are there on the number line between the numbers 2,09 and 15,3?

A) 13 B) 14 C) 11 D) 12 E) Infinitely many

4. The least positive integer which, is divisible by 2, 3, and 4, is:

A) 1 B) 6 C) 12 D) 24 E) 36

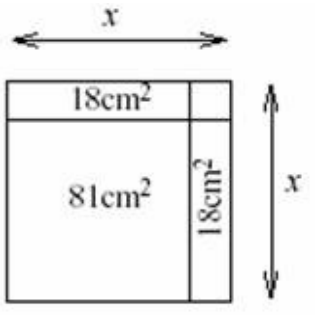
5. Two of the numbers located on the two circles (see the picture) are represented by letters A and B. The sum of the numbers on each circle is equal to 55. What number is represented by letter A?



A) 9 B) 10 C) 13 D) 16 E) 17

6. Tomek has 9 bills worth 100 zlotys each, 9 bills worth 10 zlotys each, and 10 coins worth 1 zloty each. How much money does Tomek have? (a *zloty* [zl] is a monetary unit in Poland)

A) 1,000 zl B) 991 zl C) 9, 910 zl D) 9,901 zl E) 99, 010 zl



7. A square with the length of side equal to x consists of a square with an area of 81 cm^2, two rectangles with areas of 18 cm^2 each, and a small square. What is the value of x?

A) 2 cm B) 7 cm C) 9 cm D) 10 cm E) 11 cm

8. The value of the expression $\frac{2003+2003+2003+2003+2003}{2003+2003}$ is equal to:

A) 2003 B) $\frac{1}{3}$ C) 3 D) $\frac{5}{2}$ E) 6009

9. Basia likes to add the digits that indicate the actual time on her electronic watch (for example, when the watch shows 21:17, she gets the sum equal to 11). What is the greatest sum she can get? (Hint: in some countries and sometimes in USA, instead of telling it is 1P.M., people say it is 13:00. When it is 2P.M. they say it is 14:00, and when it is 12A.M., they say it is 24:00. In this problem 21:17 means 9:17P.M.
Time expressed with this method is called *military time* sometimes.)

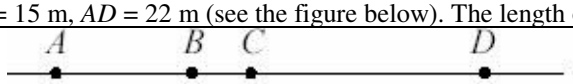
A) 24 B) 36 C) 19 D) 25 E) 28

10. The picture shows Clown Jan dancing on two balls and a cube. The radius of the lower ball is 6 dm, and the radius of the upper ball is three times shorter. The edge of the cube is 4 dm longer than the radius of the upper ball. At what height is Jan dancing?

A) 14 dm B) 20 dm C) 22 dm D) 24 dm E) 28 dm

Problems 4 points each

11. Let AC = 10 m, BD = 15 m, AD = 22 m (see the figure below). The length of segment BC is equal to

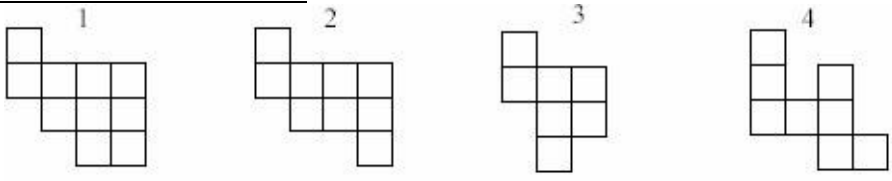


A) 1 m B) 2 m C) 3 m D) 4 m E) 5 m

12. How many shortest distances along the edges of the cube are there that connect vertex A with the opposite vertex B?

A) 4 B) 6 C) 3 D) 12 E) 16

13. From a square puzzle two pieces are cut out. These two pieces made the shaded region, (see the figure). Among the four figures below, which are these two pieces?



A) 1and 4 B) 2 and 4 C) 2 and 3 D) 1 and 3 E) 3 and 4

14. We add two different numbers chosen from the numbers: 1, 2, 3, 4, 5. How many different sums can we get?

A) 5 B) 6 C) 7 D) 8 E) 9

15 .The figure in the picture consists of 7 squares. Square A has the greatest area, and square B – the smallest area. The lengths of two of the squares are given. How many B squares will it take to fill up square A completely?

A) 16 B) 25 C) 36 D) 49 E) It is impossible.

16. A certain bar code consists of 17 black bars. A white bar divides each two black bars. The first bar and the last bar in the code are black. There are two kinds of black bars: wide and narrow. The number of white bars is 3 more than the number of wide black bars. How many narrow black bars are there in this bar code?

A) 1 B) 2 C) 3 D) 4 E) 5

17. Ewa has 20 balls of four colors: yellow, green, blue, and black. 17 of them are not green, 5 are black, and 12 are not yellow. How many blue balls does Ewa have?

A) 3 B) 4 C) 6 D) 7 E) 8

18. There are 17 trees on one side of the street on Tomek's way from his house to school. One day Tomek marked these trees with white chalk in the following way: on the way from his house to the school he marked every other tree, starting with the first one. On his way back home he marked every third tree, starting with the first one. How many trees were not marked?

A) 4 B) 5 C) 6 D) 7 E) 8

19. Today the date is 3.20.2003 and the time is 20:03 (8:03 P.M.) What will be the date after 2003 minutes?

A) 3.21.2003 B) 3.22.2003 C) 3.23.2003 D) 4.21.2003 E) 4.22.2003

20. What is the digit of ones in the number 2003^{2003}? A) 7 B) 1 C) 9 D) 5 E) 3

Problems 5 points each

21. With how many zeros does the product of the consecutive natural numbers from 1 to 50 end?

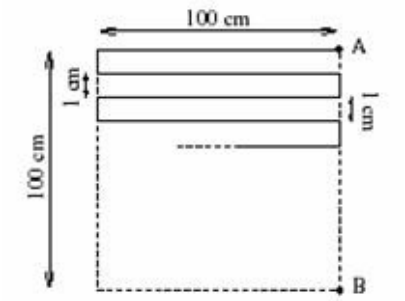
A) 5 B) 10 C) 12 D) 20 E) 50

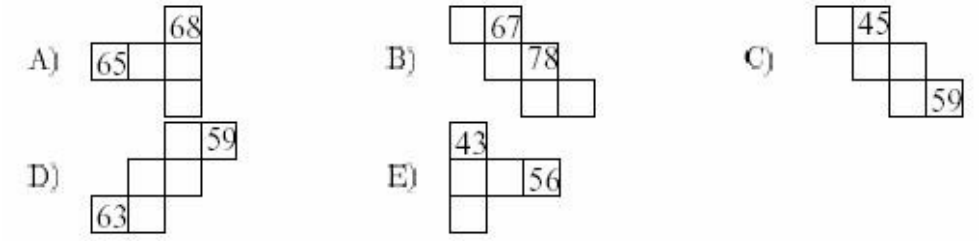
22. The square *ABCD* consists of a white square and four shaded rectangles. Each of the rectangles has a perimeter of 40 cm. The area of square *ABCD* equals:

23. We have six segments with lengths: 1, 2, 3, 2001, 2002, 2003. In how many ways can we select three of these segments to build a triangle?

A) 1 B) 3 C) 5 D) 6 E) 10

24.Piotrek is writing the numbers from 0 to 109 into a five-column table using a rule which is easy to understand (see the picture at the right). Which of the pieces below can not be filled in with numbers to fit Piotrek's table?





25. In the figure, the beginning part of the path from point A to point B is shown. How long is the whole path?

A) 10,200 cm B) 2,500 cm C) 909 cm D) 10,100 cm E) 9,900 cm

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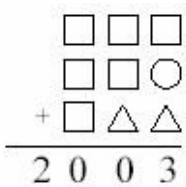
26. At 3:00 o'clock the minute hand and the hour hand make a right angle. What will the measure of the angle between these hands be after 10 minutes?

A) 90° B) 30° C) 80° D) 60° E) 35°

27. In the addition, every square stands for a certain digit, every triangle stands for another specific digit, and every circle denotes yet another digit. What is the sum of the numbers represented by the square and the circle?



28. The shaded figure at the picture consists of five identical isosceles right triangles (see the figure at the left). The area of the shaded figure is:

A) 20 cm^2 B) 25 cm^2 C) 35 cm^2 D) 45 cm^2 E) 60 cm^2

29. Red and green dragons lived in a cave. Every red dragon had 6 heads, 8 legs, and 2 tails. Every green dragon had 8 heads, 6 legs, and 4 tails. There were 44 tails altogether, and there were 6 less green legs than red heads. How many red dragons lived in the cave?

A) 6 B) 7 C) 8 D) 9 E) 10

30. Ania has 9 crayons in a box. At least one of them is blue. From every 4 crayons at least two are of the same color, and from every 5 crayons at most three are of the same color. How many blue crayons are in this box?

A) 2 B) 3 C) 4 D) 1 E) 5

Back to all problems