

Problems 3 points each

1. A butterfly sat down on a correctly solved problem. What number did it cover up?



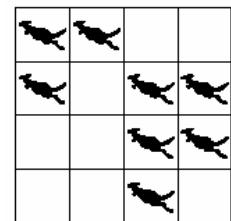
$$2005 + 205 = 3500 -$$

- A) 1295 B) 1190 C) 1390 D) 1195 E) 1290

2. Together, Anna and Olla have ten pieces of candy. Olla has two more pieces of candy than Anna. How many pieces of candy does Olla have?

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

3. There are eight kangaroos in the diagram (see the picture). What is the least number of kangaroos that have to be moved to the empty boxes in order to have two kangaroos in each row and each column?



- A) 0 B) 1 C) 2 D) 3 E) 4

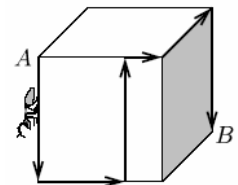
4. Eva lives with her parents, a brother, a dog, two cats, two parrots, and four gold fish. How many legs do they have altogether?

- A) 40 B) 32 C) 28 D) 24 E) 22

5. $2005 \times 100 + 2005 =$

- A) 2005002005 B) 20052005 C) 20072005 D) 202505 E) 22055

6. An ant is walking from point A to point B on a cube along the indicated path. The edge of the cube is 12 cm long. How far does the ant need to travel?



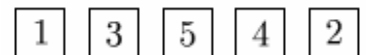
- A) 40 cm B) 48 cm C) 50 cm D) 60 cm E) 36 cm

7. On a shelf, there are 24 balls in three colors: white, red and brown. $\frac{1}{8}$ of

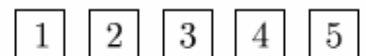
them are white, and $\frac{2}{3}$ of the rest of the balls are red. How many of them are brown?

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

8. There are five cards on the table, labeled with numbers 1 to 5 as shown in the top row. One move consists of switching two cards. How many moves do you need to make so that the cards are arranged in the way shown in the bottom row?



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



9. Tom picked a natural number and multiplied it by 3. Which number CANNOT be the result of this multiplication?

- A) 987 B) 444 C) 204 D) 105 E) 103

10. How many hours is half of a third part of a quarter of 24 hours?

- A) $\frac{1}{3}$ B) $\frac{1}{2}$ C) 1 D) 2 E) 3

Problems 4 points each

11. Eva cut a paper napkin into 10 pieces. She then also cut one of the pieces into 10 pieces. She repeated this process two more times. Into how many pieces did she cut the napkin?

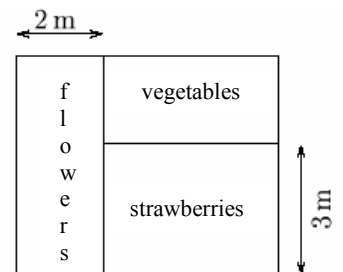
- A) 27 B) 30 C) 37 D) 40 E) 47

12. Mowgli usually walks from home to the beach, and returns on an elephant. It takes him 40 minutes altogether. One day he traveled on the elephant from home to the beach and back, which took him 32 minutes. How much time would he need to travel the same distance on foot?

- A) 24 min B) 42 min C) 46 min D) 48 min E) 50 min

13. A rectangular garden with an area of 30 m^2 was divided into three rectangular sections of flowers, vegetables, and strawberries (some of the dimensions are shown in the diagram). What is the area of the vegetable section, if the flower part has an area of 10 m^2 ?

- A) 4 m^2 B) 6 m^2 C) 8 m^2 D) 10 m^2 E) 12 m^2



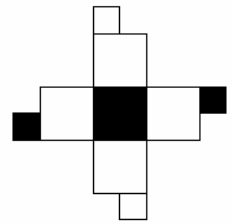
14. Grandpa suggested dividing all peanuts between the family members in the following way: one person would get 5 kilos, two people would get 4 kilos each, four people would get 2 kilos each, two people would get 1.5 kilo each, and one person would not get any nuts. Grandma suggested dividing the peanuts equally among all of the family members. For how many people would the division suggested by Grandma be better than the one suggested by Grandpa?

- A) 3 B) 4 C) 5 D) 6 E) 7

15. How many two digit numbers are there, which can be expressed only by using different odd digits?

- A) 15 B) 20 C) 25 D) 30 E) 50

16. Which of the cubes below represents the plan of the cube shown to the right?



17. Sum of five consecutive natural numbers is equal to 2005. The greatest number among them is:

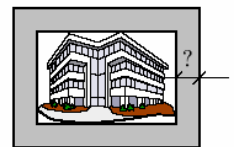
- A) 401 B) 403 C) 404 D) 405 E) 2001

18. The number of all divisors of number 100 is equal to

- A) 3 B) 6 C) 7 D) 8 E) 9

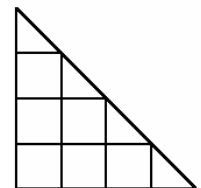
19. The frame of a rectangular painting was made out of wooden pieces of the same width. What is the width of those pieces if the outer perimeter of the frame is 8 decimeters longer than the inner perimeter?

- A) 4dm B) 2dm C) 1dm D) 8dm
E) The width depends on the dimensions of the painting.



20. How many more triangles than squares are shown in the picture?

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



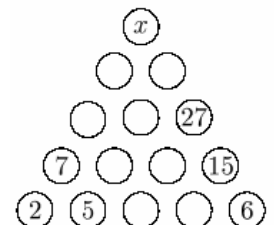
Problems 5 points each

21. There are five containers in a treasure chest, in each container there are three boxes and in each box there are 10 golden coins. The treasure chest, the containers, and the boxes are all locked. How many locks do you need to open to get 50 coins?

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

22. What number should replace x , if we know that the number in the circle in the upper row is the sum of the numbers from the two circles right below it.

- A) 32 B) 50 C) 55 D) 82 E) 100



23. In a two-digit number, a is the tens digit and b is the ones digit. Which of the conditions below ensures that the number will be divisible by 6?

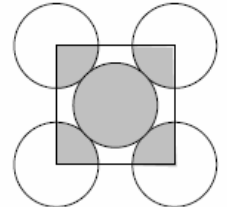
- A) $a + b = 6$ B) $b = 6a$ C) $b = 5a$ D) $b = 2a$ E) $a = 2b$

24. A wooden cube with the length of its side equal to 3 dm was painted with 0.25 kg of paint. The cube was then cut up into unit cubes (side length of 1 dm). How much paint is needed to paint the unpainted sides of the little cubes?

- A) 1.25 kg B) 1 kg C) 0.75 kg D) 0.5 kg E) 0.25 kg

25. Five circles have radii of the same length (see the picture). Four of them are touching the fifth circle, and their centers are the vertices of a square. The ratio of the area of the shaded region of the circles to the area of unshaded regions of the circles is:

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



26. From noon until midnight, Wise Cat sleeps under a chestnut tree. From midnight until noon he is awake telling stories. There is a note on that tree which says: "Two hours ago, Wise Cat was doing the same thing that he will be doing in an hour". How many hours, out of 24 hours, is the note true?

- A) 6 B) 12 C) 18 D) 3 E) 21

27. Mark has 42 cubes with side length of 1 cm. He used them to construct a prism, the base of which has a perimeter of 18 cm. The height of that prism is:

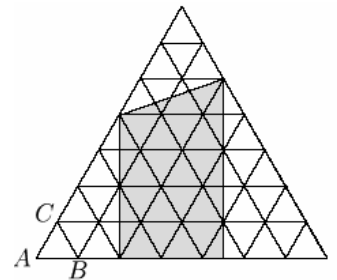
- A) 6 cm B) 5 cm C) 4 cm D) 3 cm E) 2 cm

28. On the board Peter wrote all the three-digit numbers that have the following properties: the digits in each of the numbers are different, the first digit is the square of the quotient of the second digit and the third digit. How many numbers did Peter write?

- A) 1 B) 2 C) 3 D) 4 E) 8

29. Equilateral triangle ABC (all sides congruent) has an area equal to 1. A bigger triangle was constructed out of 49 of these triangles (see the picture). The area of the shaded region is equal to:

- A) 20 B) 22.5 C) 23.5 D) 25 E) 32



30. Mary, Dorothy, Sylvia, Ella, and Kathy are sitting on a bench in the park. Mary is not sitting on the farthest right side; Dorothy is not sitting the farthest to the left. Sylvia is not sitting the farthest to the left nor the farthest to the right. Kathy is not sitting next to Sylvia, and Sylvia is not sitting next to Dorothy. Ella is sitting to the right of Dorothy, but not necessarily next to her. Which girl is sitting the farthest to the right?

- A) It cannot be determined. B) Dorothy C) Sylvia D) Ella E) Kathy

Math Kangaroo 2005

Level of grades 5 - 6

