Sage 1

6-7-8 years old

Task 1

13 people are standing in a line for ice cream. Fedia is the seventh from the beginning of the line. What is his number from the end of the line?

Task 2

Anton had 5 nuts. He gave one to his brother Nikita, who also had nuts. After that, the brothers had equal numbers of nuts. How many?

8-10 years old

Task 1

A cake was made in the shop.

There are two meringues, and before them there are two more meringues.

There are two meringues, and next to them there are two more meringues.

What is the minimum number of meringues on the cake?

Task 2

In a nontransparent beautiful bag with marmalade there are six pairs of identical orange (orange) candies, five pairs of yellow (banana) candies and three pairs of red (strawberry) ones. How many candies do you have to take out so that 2 candies of the same color are guaranteed in your hands, if you bury your hand in the bag without looking in it?

10-12 years old

Task 1

You have 12 teddy-bears, in one of them there is a chocolate with an invitation card to a Willy Wonk’s confectionery factory. You have a pan balance and three attempts to weigh. How to determine which toy contains the chocolate with the invitation card?

Answers

6-7-8 years

Task 1

Answer: seventh

Task 2

Answer: 3 nuts

8-10 years old

Task 1

Answer: 4 meringues

Task 2

Answer: 3 candies

10-12 years old

Task 1

Weigh two 6-toy groups. Divide the heavier group by halves and weigh the 3-toy subgroups. Further you should weigh 2 bears from the heavier subgroup and leave the third bear aside. If the two bears are of identical weights, then the invitation card is in the remaining (third) toy.

Sage 2

1. 6-8 years old:

In the figure, a triangle is laid out of the candies. How should I move two candies to get a square?

2. 8-10 years old:

Arrange 12 candies in 4 rows of 4 candies.

Or

Arrange 12 candies in 3 rows of 5 candies

3. 10-12 years old:

Draw 5 straight lines on a sheet of paper and arrange 10 candies on them so that on each line there are 4 candies.

Sage 3

Category І

1. To make apple jam, you need 2 kg of sugar for 1 kg of apples. How many 1 kilogram packages of sugar should you buy to make jam from 8 kg of apples?

Solution: 1) 2 x 8 = 16 (kg of sugar)

Answer: 16 packages.

2. A kilogram of candies costs 12 UAH. A sweet-toothed girl bought 2 kg of candies. How many UAH is she supposed to get as a change, if she gave 50 UAH?

Solution: 1) 2 x 12 = 24 (purchase price)

 2) 50 - 24 = 26 (change)

Answer: 26 UAH.

3. A sweet-toothed girl and a sweet-toothed boy were eating chocolates. Each was eating from his or her own box. Then they decided to look how many chocolates were left.

The girl said: "If you give me one chocolate from your box, then we will have equal numbers of chocolates."

The boy looked into the girl’s box and replied: "But you've already eaten all your chocolates!"

How many chocolates were left in the boy’s box?

Solution: If he gives one chocolate to the girl, they will have equal numbers of chocolates, i.e. 1 chocolate. Then the boy had 2 chocolates.

Answer: 2 chocolates were left in the boy’s box.

Category II

1. On her birthday a sweet-toothed girl bought 35 candies and 49 chocolate medals. What is the largest number of guests can she invite, so that candies and medals can be divided equally among all, including herself?

Solution: Find the number by which both 35 and 49 are divisible without remainder. This is 7.

7 - 1 = 6 (guests)

Answer: 6 guests.

2. On a holiday, 2 kinds of sweets were bought for a sweet-toothed girl, and 400 UAH was paid for the purchase. The price of the first kind of sweets is 60 UAH. What is the price of the second kind of sweets, if 2 kg of each kind of sweets were bought?

Solution: 1) 60 х 2 = 120 UAH - the cost of the first kind of sweets;

 2) 400 - 120 = 280 (UAH) - the cost of the second kind of sweets;

 3) 280: 2 = 140 (UAH) - the price of the second kind of sweets.

Answer: 140 UAH.

3. Two boxes of chocolates were bought for a sweet-toothed girl and a sweet-toothed boy (one box for each). In each box, there were 12 chocolates. The girl ate a few chocolates from her box, and the boy ate as many chocolates from his box as were left in the girl’s box. How many chocolates were left for the both?

Solution: Let the girl ate x chocolates from her box, then 12 - x chocolates were left. The boy ate as many chocolates from his box as were left in the girl’s box, ie. 12 - x. So in the boy’s box 12 - (12 - x) = 12 - 12 + x = x chocolates were left. Then add the boy’s chocolates to the girl’s: 12 - x + x = 12 chocolates.

Answer: 12 chocolates.

Category ІІІ

1. On a holiday cookies and candies were brought for sweet-toothed kids. Each box with cookies weighed 2 kg less than a box of sweets. How much did 4 boxes of candies weigh, if 5 boxes of cookies weighed 45 kg?

Solution: 1) 45 - 5 = 9 kg (one box of cookies weighed);

 2) 9 + 2 = 11 kg (one box of candies weighed);

 3) 4 х 11 = 44 kg (4 boxes of candies weighed).

Answer: 44 kg.

2. The sweet-toothed girl wanted to buy 4 identical chocolates, but she was 17 UAH shy of the sum she needed. Then she bought 3 such chocolates and she had 17 UAH left. How many UAH did the girl have?

The solution: 1) 17 + 17 = 34 (the price of one chocolate);

 2) 34 x 3 = 102 (for three chocolates);

 3) 102 + 17 = 119 UAH (the sweet-toothed girl had).

Answer: 119 UAH.

3. In the sweet toothed girl’s bag there are candies of three different varieties. They are the same by touch.

Question: What is the minimum number of candies does she have to take out of her bag at random to ensure that at least two identical candies are taken out?

Solution: In the worst case, three candies can be of different varieties, which means that the fourth candy will be a pair to one of the varieties.

Answer: 4 candies.

Sage 4

1. There are two houses, in each house there is either a sweet-toothed dragon or a large delicious candy. In each of the houses there is only one thing. It is necessary to determine, with the help of inscriptions on the doors, which is where. The both houses may contain identical things.

Both inscriptions are either true or false.

I: There are dragons in the both houses.

II: Neither of the houses has a dragon.

2. There are two houses, in each house there is either a sweet-toothed dragon or a large delicious candy.

Here, on one of the houses the inscription is true, and on the other it is false.

I: The candy is in this house, and in the other house the dragon sits.

II: In one of these houses there is a big candy; in addition, in one of these houses there is a dragon.

3. Here the condition is trickier:

If there is a candy in house I, then note I is true, and if there is a dragon there, the note is false.

If there is a candy in house II, on the contrary, note II is false, and if there is a dragon in it, it is true.

I: There are candies in the both houses.

II: There are candies in the both houses.

.

4. A sweet-toothed dragon came to Little Red Riding Hood. Little Red Riding Hood invited the dragon to eat a delicious candy, if he could find a code to the chest lock. The code is stored in one of the 4 boxes. On each of the boxes a hint is written, however the truth is written only on one box - the one with the code.

1. The code is here.

2. None of the two neighboring boxes contain the code.

3. The code is in box I.

4. The code is here.

Sage 5

Divide the chocolate bar for the twins into two equal parts

Divide the chocolate bar for the twins into two equal parts

Divide the chocolate bar for the twins into two equal parts

Sage 6

\*\*\* We have 12 balls. You can take 1 or 2. The winner is the one who will take the last ball. Your move is the first. \*\*\*\* We have 12 balls. You can take 1, 2 or 3. The winner is the one who will take the last ball. Your move is the first. \*\*\*\*\* We have 10 balls. You can take 1,2, 3 or 4. The winner is the one who will take the last ball. Your move is the first.

\*\*\* We have 15 balls. You can take 1 or 2. The winner is the one who will take the last ball. Your move is the first. \*\*\*\* We have 16 balls. You can take 1, 2 or 3. The winner is the one who will take the last ball. Your move is the first. \*\*\*\*\* We have 15 balls. You can take 1, 2, 3 or 4. The winner is the one who will take the last ball. Your move is the first.

\*\*\* We have 18 balls. You can take 1 or 2. The winner is the one who will take the last ball. Your move is the first. \*\*\*\* We have 20 balls. You can take 1, 2 or 3. The winner is the one who will take the last ball. Your move is the first. \*\*\*\*\* We have 20 balls. You can take 1, 2, 3 or 4. The winner is the one who will take the last ball. Your move is the first.

+++ We have 13 balls. You can take 1 or 2. The winner is the one who will take the last ball. The leader’s move is the first. ++++ We have 13 balls. You can take 1, 2 or 3. The winner is the one who will take the last ball. The leader’s move is the first. +++++ We have 11 balls. You can take 1, 2, 3 or 4. The winner is the one who will take the last ball. The leader’s move is the first.

+++ We have 14 balls. You can take 1 or 2. The winner is the one who will take the last ball. The leader’s move is the first. ++++ We have 15 balls. You can take 1, 2 or 3. The winner is the one who will take the last ball. The leader’s move is the first. +++++ We have 12 balls. You can take 1, 2, 3 or 4. The winner is the one who will take the last ball. The leader’s move is the first.

+++ We have 17 balls. You can take 1 or 2. The winner is the one who will take the last ball. The leader’s move is the first. ++++ We have 17 balls. You can take 1, 2 or 3. The winner is the one who will take the last ball. The leader’s move is the first. +++++ We have 19 balls. You can take 1, 2, 3 or 4. The winner is the one who will take the last ball. The leader’s move is the first.

Sage 7

Make 4 identical squares of 12 candies, as shown in the picture.

a) Remove 2 candies so that 3 squares are left.

b) Remove 4 candies so that 2 squares are left.

c) Remove 4 candies so that 1 square is left.

g) Remove 5 candies so that 2 squares are left.

Make 2 little shovels from the big one by rearranging 4 candies.

How to rearrange 2 candies to get three triangles of the two triangles ?

Rearrange 2 candies to get 4 equal rectangles from the three squares.

Rearrange 2 candies to get 4 equal triangles

Try to write "one hundred" with the same amount of candies, but in another way.

Candy challenges

Make 4 equal triangles from the 9 candies.

Make an umbrella from the candies. Then rearrange two candies so to get three equal triangles.

Make a house from the candies. Rearrange one candy to turn the house to the other side.