I KNOW MORE (questions)

Motto: Math is fun when you find it anywhere in any other subject so use your brain power!

1. What is the result of the calculation:
$$100 – 99 + 98 – 97 + \dots + 2 - 1?$$

2. Which of the following shapes has more than one axis of symmetry?
A. Heart   B. Rhombus   C. Clubs (Trefoil)   D. Kangaroo

3. How much is the decimal result of the calculation $75/10 + 6/10$?

4. Pick the number that has the hundredths strictly bigger than the hundreds:
A. 3683.257   B. 6024.2   C. 7328.35   D. 2013.2

5. What is the approximate number of days equal to one million seconds?

6. If the isosceles triangle ΔABC has the measure of angle $\hat{A}$ equal to 18° how many degrees can measure angle $\hat{B}$?
A. 144°   B. 89°   C. 100°   D. 25°

7. The classroom is closer to the shape of a:
A. Hexagon   B. Parallelepiped   C. Polygon   D. Rectangle

8. What is the result of the calculation $\dfrac{n \cdot 2021}{2021 \cdot 2023}$ if n = 2022 · 2023?

9. Do the maths: (654 · 654 · 15) : (3 · 218 · 2 · 327 · 5)!

10. If 31 - 4 + 3 + 7 - 5 - @ = 19 what number is missing?

11. What decimal number is equal with $33/100 + 7/100$?

12. If I have (1 + 2 + 3 + ... + 1999 + 1000) euros how much money do I have?

13. What is the smallest natural number that is dividing simultaneously by the numbers 1, 2, 3, 4, 5 and 6?

SCOALA
GIMNAZIALĂ
NR. 184

Str. Ştefan Magheri / Nr. 13
Sector 1 / Bucureşti
Tel./Fax: 021.667.22.25
Email: scoala184@yahoo.com
Cod Fiscal: 32287098
Web: www.scoala184.ro

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14. Choose the number that has the tenths strictly smaller than the tens:
A. 704.09   B. 92.92   C. 921.921   D. 743.355

15. The sum of three consecutive odd numbers is 207. What is the smallest number?

16. How much is the quarter of 1/0.4 reversed?

17. Sara is 5 years old. How old will she be in 12 years and 5 months?

18. The perimeter of a square is 1.6 m. What is the length of its side expressed in decimeters?

19. If you wanna know my card password perform the calculation:

$$1 - \cfrac{1}{2 - \cfrac{1}{3 - \cfrac{1}{4 - \cfrac{1}{5}}}}$$

20. Cats sleep 2/3 of the time. How many minutes do they sleep in 24 hours?

21. What is the thousandth of the number 724351.16?

22. What is the result of the calculation $10 \cdot 90 - (90 - 10)$?

23. In the garden three cats are spying six little sparrows, all perfectly healthy. How many legs are there in total?

24. I buy from the store a coffee with 3 euro and 60 cents, a vanilla croissant with 3.75 euro and a candy with 75 cents. I pay with a 10 euro note and I ask to myself do I get more than 2 euros as a change?

25. Two triangles, a circle, a square, two rhombuses, a trapezium and an octagon met at a table. How many segments are there at the table?

26. My clock says it's 20 past 2 in the afternoon. What hour will be in 8 hours and 40 minutes?

27. How many natural numbers are found between 1.18 and 42.09?

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28. Pick the smallest number between these numbers: 54.54, 54.45, 54.405, 54.504, 54.450!

29. Choose the number eleven million eleven thousand eleven:
                A. 11011110 B. 11110011 C. 11011010 D. 11011011

30. How much is the half of the half of 3.5?

31. What is the last digit of the product $18 \cdot 18 \cdot 18 \cdot 18 \cdot 19 \cdot 19 \cdot 19$?

32. You divide 0.25 by 1/4. What result will you get?

33. What is the half of 2 to the power of 98?

34. Iva, José and Rosa took a 9 km ride together. How many kilometers has each one traveled?

35. Let's say a vowel is worth 2p and a consonant 1p. How much worth the words FRIENDLY MATHEMATICS?

36. A female kangaroo weighs 80 kg and her cub 20.5 kg. How much do the mother and her four cubs weigh?

37. Ana wants to buy 3 souvenirs that costs 7 euro and 50 cents each, but he has only 15.75 euro. How much money is she missing?

38. What is the third of 6?

39. What number do we get if we add up 3 tenths and 7 tenths?

40. Which animal is heavier, the one who weighs 85 kg, 8500 g, 8500000 mg, 0.0085 t or 8500 dg?

41. "My lover loves me a bit, enough, deeply, madly, at all, ...". Breaking the 27 petals of a rose, he loves me a bit, enough, deeply, madly or at all?

42. Choose the fraction equal to the decimal number 1.25: $\dfrac{125}{10}, \dfrac{9}{4}, \dfrac{100}{125}, \dfrac{12.5}{10}, \dfrac{0.25}{2}$

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43. Here are 4 numbers: 0.3456, 0.6, 0.78, 0.2345. What is the sum of the biggest and the smallest?

44. How does the number one thousand billion looks like in digits written as a power?

45. Alesia finds 4 boxes. The first box contains 1 kg of lead, the second one has 1000 g of feathers, the third one 1 kg of strawberries and the last one 1 kg of tea. Which is the heaviest box?

46. My name is Laura. My father is 36 years old, and my sister, Cristina, is 2 years older than me. Together our age is equal to that of the father. How old am I?

47. How many seconds do we find in a week?

48. To knead a dough 300 g of flour, 80 g of sugar, 0.5 kg of water, 5 g of salt and 250 g of butter are needed. How many dag weighs the dough?

49. The school is beginning. Sara buys a geometrical kit of 60 lei, 5 pens of 30 lei per piece, a ruler of 1.8 lei, a compass of 2.5 lei and some scotch of 10 lei. At an exchange rate of 4.95 lei for 1 € check if is enough for Sara 45 € to pay the expenses?

50. Find the arithmetic mean of the numbers:
$$a = \sqrt{108} - \sqrt{75} + \sqrt{27}, \ b = \frac{2}{\sqrt{3} - 1} + \frac{4}{\sqrt{3} + 1} + 1 - \sqrt{3}$$

51. Which of the following numbers is not from this list: $1120, 112 \cdot 10, 11200 : 10, 1000 + 120, 112 + 10$?

52. How many prime numbers are less than 100?

53. Alexandra received twelve dolls, thirteen apples, twenty-five chocolates, thirty pears, fifteen peaches and a bicycle. How many fruits did Alexandra get?

54. Each of the 11 children of the grandmother has 9 children who in turn have 7 children each. How many great-grandchildren does grandma have?

55. What is the next number from this sequence: 1, 3, 7, 15, 31, 63, 127, ...?

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56. What is the result of the calculation 1999 – 999 + 99 - 9 in roman numerals?

57. The correspondent of 36 is 18, of 325 is 30, of 45 is 20 and of 30 is 0. What is the correspondent of the 531?

58. Given the number 347853478534785, what is the digit on the 703rd place?

59. If a + b = 67.89 how much is the sum 10a + b + a + 10b?

60. Maria and her two twin brothers are 39 years old together. How old is each if 5 years ago the sum of the ages of the two twins was equal to Victor's age?

61. The product of 100 positive numbers is equal to 101. How much is their sum?

62. In a caravan of camels and dromedaries there are 28 heads and 45 humps. How many dromedaries are in the caravan?

63. What is the meaning of the 5 circles on the Olympic flag?

      A. Continents B. Zodiacal signs C. Working days D. Colours

64. 606 swiss ate 606 sausages of which 600 sausages were eaten with sauce and 6 without sauce. How many sausages will be served without sauce for the 606606 swiss?

65. If we write a - b = c what is the name of a?

      A. Quotient B. Subtractor/Subtrahend C. Remainder D. Minuend

66. Klaus is a dog 9 times heavier than a cat, a mouse is 20 times lighter than the cat and a cabbage is 6 times heavier than the mouse. How many times is Klaus heavier than the cabbage?

67. How many megabytes fit in a gigabyte?

68. What is the sum of the two digits missing in the multiplication 6@3 · 5 = 346@?

69. A window with a height of one meter measures in a photo 2 cm while the height of the wall is, in the same photo, 4.5 cm. What is, in meters, the height of the wall?

70. How many 500 GB memory sticks can fit on a 3 TB hard drive?

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71. What is the rounding to the tenths of Pi?

72. How many jumps a kangaroo makes to cover the distance of 5000 m + 5000 dm + 5000 cm + 5000 mm if a jump is 5 m long?

73. What is the decimal number between 3.14 and 3.15?

74. Do the math: MMXIX + MDCCLXXXIX!

75. What is the name of any triangle?
              A. Scalent   B. Scalene   C. Polygon   D. Isosceles

76. How much is the perimeter of a square with the side of 1.(3) m written in decimals?

77. The length equal to twice the radius of a circle is:
              A. Chord   B. Arc   C. Disc   D. Diameter

78. What is the name of the angle with the 180° measure?
              A. Zero angle   B. Obtuse angle   C. Straight angle   D. Acute angle

79. How many axes of symmetry does the rhombus have?

80. How many degrees measure the angle formed by the bisectors of two adjacent and supplementary angles?

81. In the yard there are equally pigs, ducks and chickens. They have 144 legs together. How many ducks are in the yard?

82. In the kitchen closet is a jar with 650 kg of jam. Rafael eats 6 teaspoons of jam daily. If a teaspoon with jam weighs 6 g how much jam remains in the jar after 20 days?

83. A can full of milk weighs 25 kg and the half-full can has 13 kg. What is the weight of the can?

84. Mother's birthday is Sunday. My father will celebrate his birthday after 55 days. On what day of the week will be his anniversary?

85. How much is the quarter of the half of 125,473?

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86. How many hundreds does the number 2131 have?

87. Find the 147th term of the sequence: 1, 4, 7, 10, ...!

88. In Canada there are two units of volume for measuring wheat: the gallon and the obroc. The obroc has 8 gallons and one gallon has 4.5 liters. One farmer sells 500000 obrocs. How many cubic meters does this quantity represent?

89. George watches TV for 30 minutes a day. How many hours he spends, this year, in front of the TV?

90. Adrian answered 20 questions and did not answer the last 4 questions. The instructions provide for 3 points to be given for each of the questions from 1 to 8, 4 points for each of the questions from 9 to 16 and 5 points for each of the questions from 17 to 24. 30 points are awarded by default. What is the score Adrian gets?

91. Find out the result of multiplying $14.15 \cdot 0.1$!

92. How much you get by calculating 2 + 20 + 200 + 2000 + 20000?

93. Eric eats 6 toffees a day. Knowing that one box contains 21 toffees, how many boxes Eric eats in 12 weeks?

94. The total length of the edges of a rectangular parallelepiped is 108 cm. The length of the parallelepiped is 12 cm and the width is 8 cm. What is its height?

95. A drinking water source with a flow rate of 80 liters of water per minute supplies two fountains, one of which receives 4 times more water than the other. What is the flow of the fountain that receives more water?

96. If I give Daniel 2 chocolates he borrows me his bike for 3 hours. If I give him 12 candies he borrows me the bike for 2 hours. How long will Daniel borrow me the bike tomorrow when I'll give him a chocolate and 3 candies?

97. Do the maths, please: 1,1 : 0,001!

98. How many seconds do we have on February 29th?

99. How many hours does September have?

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100. How much is a tenth, a hundredth and a thousandth?

101. How much is the half of the half of the half of the half of the 1000?

102. Do the math: $(25 + 25 \cdot 25) : 25!$

103. How many whole years will Andrew have when he turns 11000 days old?

104. How many zeros does the number three million eighteen thousand five hundred contain in its writing in figures?

105. What is the smallest natural number in the writing of which all the even digits are used?

106. Do the math: $2022 : [2022 \cdot (2022 - 2013) - 2022]!$

107. After a 10% increase the price of a phone case becomes 44 euros. The price of the phone case before the increase was:

A. 48,4   B. 40   C. 48   D. 44

108. Pick the proper fraction between 3/2, 10/11, 11/10 and 3, invert it and multiply it by 10. How much is the square of the result?

109. In Romania students get marks (grades) for their tests. Students in Year 8 obtained the following results in a math test: 6% - grade 4, 8% - grade 5, 12% - grade 6, 14% - grade 7, 20% - grade 8, a quarter of students - grade 9. What percentage of students obtained marks greater than or equal to 9?

110. $\widehat{AOB}$ and $\widehat{COD}$ are opposite angles. What is the measure of the angle bisectors formed by $\widehat{AOB}$ and $\widehat{COD}$?

111. In the right triangle Δ ABC, G is the center of gravity. Find out the length of (AG) if the hypotenuse is 12 cm long.

112. In a cube the diagonal of a base is $4\sqrt{2}$ cm long. How much is the total area of the cube?

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113. Ana has a sum of money of which she spends three fourths on the first day. On the second day she spends a third of the rest, meaning 12 euros. How much money did Ana initially have?

114. Find out the greatest prime divisor of 1197.

115. In a normal year in Romania we can have the following average temperatures: -7^0C in January, -11^0C in February, 9^0C in March, 11^0C in April and 21^0C in May. How much is the difference between the highest and the lowest temperature?

116. Do the maths for 0,3(54) + 0,1 and pick the right answer:
A. 5/11   B. 151/330   C. 441/900   D. 364/100

117. At the end of the first semester, the students of a Romanian school obtained the following marks (grades) in mathematics: 4 (5 students), 5 (24 students), 6 (26 students), 7 (30 students), 8 (27 students), 9 (25 students), 10 (13 students). Choosing randomly a student what is the probability that he/she will have a grade of 10?

118. If points A, B and C are collinear points and D is a point outside the line AC then the number of lines determined by the four points is:
A. 2   B. 3   C. 4   D. 8

119. Adrian has a toy box in the shape of a rectangular parallelepiped with dimensions of 45 cm, 60 cm, 80 cm. What is the maximum number of Rubik's cubes with a side of 15 cm that Adrian can insert into the toy box?
A. 48   B. 60   C. 62   D. 64

120. Calculate the sum of the positive divisors of 2022!

121. What is the descending order of the numbers 1.83, 1.8(3), 1.(83), 1.833?

122. Points A, B, C and D are collinear, point C is the middle of the (AD) segment and point B is the middle of the (AC) segment. If AB = 2 cm then the length of the (BD) segment is equal to:
A. 2 cm   B. 4 cm   C. 6 cm   D. 8 cm

123. How much is the measure of the angle formed by the bisecting lines of two adjacent and complementary angles?

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124. A cube shaped aquarium has a diagonal equal to $6\sqrt{3}$ cm. Find out the sum of the lengths of the aquarium edges.

125. More children want to buy a gift to a friend. If each of them contributes with 30 € then 20 € are needed and if each contributes with 35 € then 15 € remain after buying the gift. How much does the gift cost and how many children are involed?

126. A VABCD regular quadrilateral pyramid shaped roof has a VO height of $3\sqrt{2}$ m and a side edge VA of 6 m. What length is the edge of the roof base?

127. After the mobility in Romania Gaetano and Alberto saved 140 € together. How much money did Gaetano save if 30% of the amount he saved is two-fifths of the amount Alberto saved?

128. How much is the area of the outer square if the area of the inner square, whose vertices are located in the middle of the sides of the outer one, is 12 cm²?

129. José wants to paint all the faces of a cube. The total length of the edges is 2.16 m. 1 kg of paint is needed to paint a square meter. How many kilos of paint do José need to paint the cube?

130. At the cashier of a concert hall is made the monetary: 167 tickets of 30 €, 48 tickets with reduced fare by 25% and 96 tickets at half price. What is the amount collected?

131. If 20 notebooks at the price of 3 lei and 5 lei cost a total of 74 lei, how much does a notebook of each type cost together?

132. A rectangular garden is surrounded by a wire fence with a length of 42 m. If the width of the garden is half the length what are the dimensions of the garden?

133. A crate with flour weighs 90 kg. If we empty half the amount of flour then the crate together with the flour weigh 55 kg. How much does the empty crate weigh?

134. Sara buys vegetables with half the money and fruits with a quarter of the money. How much money did Sara have initially if she had 27 € left?

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135. At a party renting the restaurant cost 320 € and the food cost 11.5 € per person. How many people attended the party if 573 € were spent?

136. Bogdan is passionate about cycling. He travels a road in 3 days as follows: on the first day a third, on the second day 10 km more and on the third day the remaining 92 km. What length is the road traveled by Bogdan?

137. In a hotel there are 20 suites with 2 and 3 rooms, 48 rooms in total. How many suites of 2 rooms are in the hotel?

138. The sum of five consecutive odd natural numbers is 105. What is the number in the middle?

139. What measure does the smallest acute angle of a right triangle have if the difference between the acute angles is 28^0?

140. How much is the perimeter of a rhombus if the lengths of its diagonals are 16 cm and 12 cm?

141. How long is the diagonal of a square with an area of 16 cm²?

142. At a contest the participants receive 30 questions. For each correct answer 5 points are given and for each wrong answer 3 points are missed. How many correct answers had a participant who scored 118 points?

143. How many rectangles with the perimeter equal to 14 there are?

144. What is the sum of the digits of the number $N = 10^{92} – 92$?

145. The population of a hive has decreased following an epidemic by 20%. By what percentage the population needs to increase in order to return to the initial number?

146. Suzana got the average of 12.5 for the first four test papers. What grade should she gets in the next test to have the average 13?

147. My friend has celebrated 30000 days since his birth. What age will he celebrate on his next anniversary?

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148. A boat departs on a Monday at noon for a trip lasting exactly 100 hours. What is the day and the time of its arrival?

149. A funny farmer says: "I have chickens and rabbits. When I count the heads I find 100. When I count the legs I find 320. How many chickens do I have?"

150. The arithmetic mean of three numbers is 20. The arithmetic mean of the first two numbers is 25. How much is the third number?