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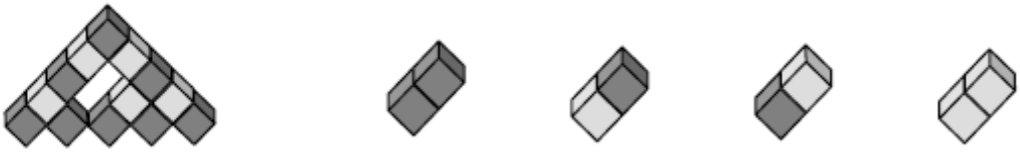
MathEdge Intermediate Level Contest Problems

1) $(100 \times 100) - (99 \times 99) = ?$

2) Draw the next two pictures:  _____ _____

3) Circle the shape at the right which fits into the open space of the graph given below:



4) Evaluate $50 - 49 + 48 - 47 + 46 - 45 + \ldots + 4 - 3 + 2 - 1$.

5) In the repeating decimal 0.234234234… , what is the 50^{th} number after the decimal point?

6) The numbers in the sequence 3, 8, 13, 18, and so on, increase by 5's. The numbers in the sequence 5, 9, 13, 17, and so on, increase by 4's. The number 13 is in both sequences. What is the next number that appears in both sequences?

7) In an experiment, every hour 20% of the total number of bacteria die, and those remaining bacteria double. If there were originally 125 bacteria, how many are there after three hours?

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MathEdge Intermediate Level Contest Problems

8) Together, Juan and Carla made 9 cupcakes to match the colors of the American flag.
   - They made 1 fewer blue cupcake than red cupcakes.
   - They made twice as many red cupcakes as white cupcakes.

   How many blue cupcake did they make?

9) The artwork at the Isosceles Museum is unusual because the picture frames are not rectangles. On one wall, the paintings have frames in the shapes of a pentagon, a circle, a hexagon, and an octagon.
   - The **forest watercolor** is next to the octagon.
   - The **ocean scene** is not surrounded by a five-sided frame.
   - The **fruit-bowl** painting has a frame shaped like a grapefruit.
   - The painting of **city streets** has a frame in the shape of a stop sign.

   Which painting is in the Hexagon frame?

10) Eight teams entered a soccer tournament. Each team played every other team once. How many total games were played in the tournament?

11) The first in a set of numbers is 2 and the fifth is 16. If every number is the sum of the previous two numbers (starting with the third number), then what is the sum of the first five numbers?

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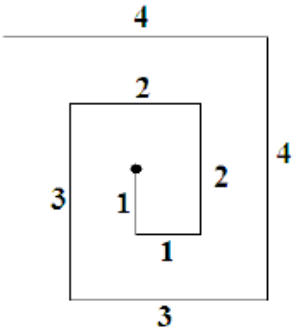
MathEdge Intermediate Level Contest Problems

12) Karen, Jon, Marcus and Tara each ate a different kind of mini-pizza for lunch. After lunch, there was $\frac{1}{4}$ of the plain pizza left, $\frac{1}{3}$ of the pepper pizza left, $\frac{1}{2}$ of the mushroom pizza left, and $\frac{5}{8}$ of the sausage pizza left.

- Karen ate the most.
- Jon ate the least
- Marcus ate more than Tara.

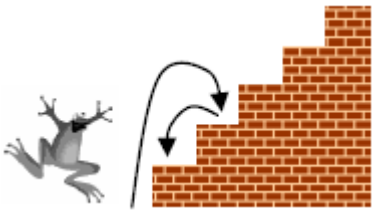
Who ate the Pepper pizza?

13) Kathy drew an interesting design with her pen, shown to the right. The numbers indicate the length of each line in centimeters. Kathy continued this design until her pen ran out of ink. If the total distance of all the lines she drew is 3 meters, then what is the length of the longest line she drew? In what direction was her pen moving when she drew this line?



14) Tim is building a fence. First, he places five stakes in the ground. He then places a stake between each of those five stakes. At this point, he decides the fence is not dense enough, and once again places a stake between each of the stakes already there. Finally, for decoration, he plants a flower between each of the stakes in the finished fence. How many flowers did Tim plant?

15) MathFROG is sitting at the bottom of the stairs and would like to leap to the top. MathFROG leaps up two steps and then down one. Then MathFROG leaps up another two steps and down one. (Note that down one is considered another leap). If this pattern continues, how many leaps will be necessary for MathFROG to touch the 5th step the first time?



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MathEdge Intermediate Level Contest Problems

16) Green and blue marbles are placed in the following way: one green, one blue, two green, two blue, three green, three blue, and so on.What is the colour of the 100th marble placed?

17) Troy plants a magical plant in his garden. The plant doubles in height every day, until it reaches its maximum height. If it takes 10 days to reach its maximum height, how many days does it take to get to half of that height?

18) Rosa, Glen, Cathy, and Errol each bought snacks from several vending machines. Each person got back 6 coins, but they were different combinations of coins. Each person received less than $1 in change. The machines returned only nickels, dimes, and quarters. Each person had at least one of each coin.

- Rosa had the fewest dimes but the same number of quarters as Errol.
- Glen had an equal number of nickels, dimes, and quarters.
- Cathy had the same number of quarters as Glen.
- Errol had more dimes than Cathy.
- Cathy had more dimes than quarters.
- Rosa had fewer quarters than Cathy.

How much money did Cathy get back from the machines?

19) Mrs. Richards is having one big birthday party for all seven grandchildren because each celebrates a birthday in the same month. She arranged candles in combinations that show each grandchild's age (see graph). Each candle figure represents a certain number of years.

- The youngest grandchild will be 2 on this birthday.
- Louis and Paul are twins. They will be 9.
- Marley and Keith are a year apart..

How much older is Carla than Julianne?