Math Challenge #4

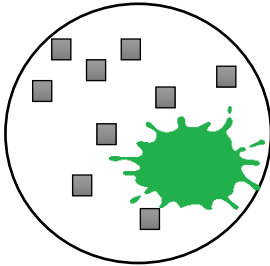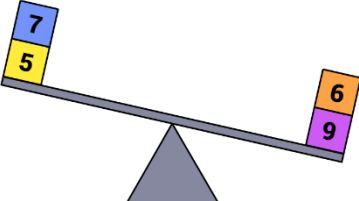| First Name: _____ | Last Name: _____ | Grade: _____ |
| Teacher: _____ | Parent's email: _____ | |

Something is Missing

Welcome to the Math Challenge #4. We will be solving mysteries in this challenge. Some problems are missing a digit or two, some problems are missing things. Other problems are simply mysteries. They all can be solve by using the 'working backward' strategy or 'use logical reasoning' strategy, or a combination of both. Try solving them and don't forget to ask for help if you get stuck.

If you are new to any of the problem solving strategies, check out our complete overview of elementary problem solving strategies at https://www.mathinaction.org/problem-solving-strategies.html.

Kinder & First Grade: solve <u>at least</u> 3 problems.
Second & Third Grade: solve <u>at least</u> 7 problems.
Fourth Grade and above: solve <u>at least</u> 12 problems.

Answer

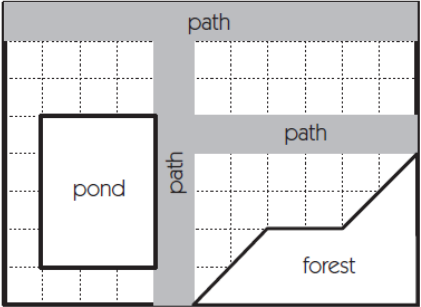|		
1.	Liza has 8 markers. She lost some of the markers. Now she has 5 markers. How many markers did she lose?	
2.	Albert drew 12 squares inside the circle below. But he dropped some paint on his drawing. How many of the squares are covered by the splat of paint?	
3.	Leanne had a jar of marbles. She dropped the jar and lost some of the marbles. If she lost 4 marbles, and she now has only 9 marbles, how many marbles were in the jar before she dropped it?	
4.	Mandy made 4 snowballs. Sierra made 7 snowballs. Lara made some snowballs. When Mandy counts the total number of snowballs made, she is sure that there are 20 snowballs in total. How many snowballs did Lara make?	
5.	Lorraine was trying to expand her game collection. She bought twelve games from a friend, got two used games from the game store, and bought two more at a garage sale. If two of the games didn't work, how many good games did she end up getting?	

6.	Kathleen is playing with a balance scale. In order for a scale to balance, the total number on left side must be equal to the total number on the right-hand side. The scale in the picture is tilted to the right. Something is missing to balance the scale.
	    a. Which side of the balance should Kathleen add a number?
	    b. What number is needed to be added to the scale so that it is balanced?
		a.
		
		b.

7.	The school cafeteria ordered forty-two red apples and fourteen green apples for students' lunches. But, if only nineteen students wanted an apple, how many extra apples did the cafeteria end up with?	
8.	Marcy found 19 ladybugs. Lee found 1 more ladybug than Marcy. Rosa found 2 less than Lee. Tom also found some ladybugs. If they all find 70 ladybugs in total. How many ladybugs did Tom find?	
9.	Mr. Corroone wants to bike 364 miles this fall. If he starts on a Monday and does a route that is 13 miles every weekday, how many weeks will it take him to bike 364 miles? He is not biking during the weekend.	

10.	Missing Parentheses! The following expressions are missing parentheses. Place one set of parentheses so that each expression equals 4 and write the number sentence.
	    a. $6 - 4 + 2 + 4$
	    b. $4 + 3 - 5 + 2 + 4$
	    c. $3 - 1 + 4 - 2 + 2 - 2$
		a.
		b.
		c.

11.	Every birthday the King gives his only daughter ♦ more flowers compared to the previous year. This year he gave her ♦ + ♥ flowers. Last year she got ♦ + ◈ flowers. The king has ♦ healthy grandsons, together they have 6 arms. If ◈ = 4, how many flowers did she get this year?	

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12.	Lina drew a picture of squares. The picture has one square in the middle, surrounded by other smaller squares. Together (the middle square and all the smaller squares form a bigger square. All the smaller squares have the same side lengths, and there is no overlaps and no gaps between the squares. The side length of each of the smaller squares is each 1/3 the side length of the middle square.
	    a. How many smaller squares are in the picture?
	
	    b. What is the area of the square formed by the whole picture if the side length of the middle square is 9 cm?
		a.
		
		b.

13.	Fiona spent half of her money at the store. She then went to a coffee shop and spent one fourth of her remaining money. If she has 6 dollars left, how many dollars did Fiona start with?	

14.	Friendly Towers is a high-rise apartment building in Woodinville. Dimitri and three of his friends, Samantha, Bella, and Inara live on different floors of Friendly Towers.
	    • Dimitri lives on the 9th floor.
	    • Friendly Towers has five times as many floors as Dimitri's floor number.
	    • Bella lives on the third floor below the top floor.
	    • Inara lives two floors above Samantha, and Samantha lives 5 floors below Bella.
	    • The pool and the gym are located on the floor which is 8/9 of the way to the top of the building.
	Find the following:
	a. Samantha lives on _____ floor.
	b. Bella lives on _____ floor.
	c. Inara lives on _____ floor.
	d. The pool and the gym are located on ____ floor.
		a.
		b.
		c.
		d.

15.	Below is a map of a neighborhood park near Sony's house. Any place that is not a path, the pond, or the forest is covered in grass. If each square represents 9 square yards, what area of the park is covered in grass? Express your answer in square yards.	

16.	Mrs. Calkins, the 4th grade teacher, pinned numbers onto the backs of three students, Jacob, Sanvika and Lina. Each student can see the other two students' numbers but cannot see their own number.	
	• Sanvika sees the two numbers, and she says that they add up to a square number. • Lina also says that the two numbers she sees add up to a square number. • But Jacob says that if he pairs up the two numbers he sees, they don't add up to a square number. It's either 5 too little or 6 too big. Mrs. Calkins also said that the three numbers pinned on their backs add up to a square number. Find and list the three numbers (in increasing order) that were on the students' backs using the information.	

17.	Todd and Jeremy collected a total of 602 coins from all over the world. If Todd gave 136 of his coins to Jeremy, Jeremy would have 6 times as many coins as Todd. How many coins each of them collected?	

18.	Mr. Thomas has a flatbed truck (like in the picture) that has 6 wheels. When empty, the truck's total mass is 4300 kg. He uses the truck to transport straw bales. Each straw bale has a mass of 235 kg. Each of the six tires on the truck has a maximum load of 1500 kg. How many straw bales could Mr. Thomas transport without risking a tire blowout? Note that the tires are also carrying the load of the truck itself.	

Solution is available on November 19, 2021, at www.mathinaction.org

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