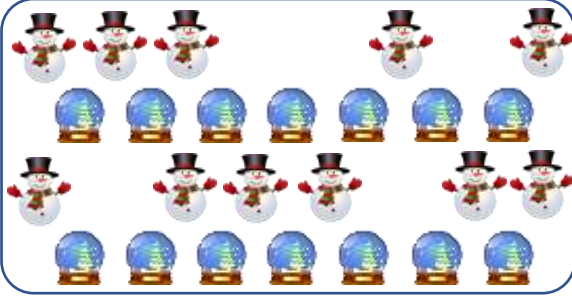| First Name: _____ | Last Name: _____ | Grade: _____ |
| Teacher: _____ | Parent's email: _____ | |

Winter Math Puzzles

Welcome to Math Challenge #8. Math puzzles are fun to solve; these types of problems can give us great boosts in our math skills and problem solving skills.
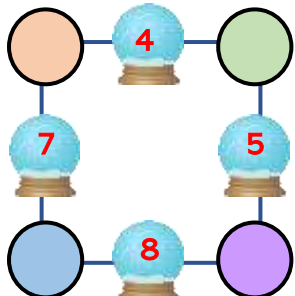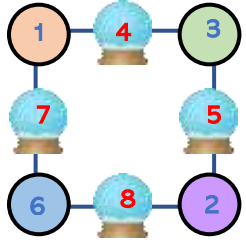
Kinder & First Grade: solve <u>at least</u> 3 problems.
Second & Third Grade: solve <u>at least</u> 7 problems.
Fourth Grade and above: solve <u>at least</u> 12 problems.
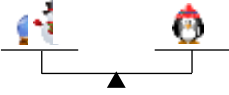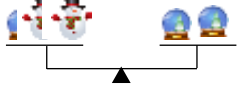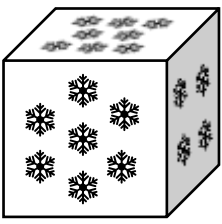
Answer

| 1. | Sanjana has a sheet of stickers (see picture). She used some snowman stickers. How many snowman stickers did she use? | *5 [snowman stickers]* |

2.	This is an operation puzzle. Write down the correct operation (**+** or **−**) in each box to make the sum correct.	
	a. 3 ☐ 2 ☐ 2 = 7	*a. + and +*
	b. 5 ☐ 4 ☐ 3 = 6	*b. + and −*
	c. 4 ☐ 1 ☐ 4 = 7	*c. − and +*

| 3. | If 🐧 + ⛄ = 9 and 🐧 + 🐧 = 4   ⛄ = ? | *7* |

| 4. | Write the digits 1, 2, 3 and 6 in the circles so that each number in the snow globe is equal to the sum of the two numbers in the circles that are directly connected to the globe. | *Orange circle = 1*
Green circle = 3
Blue circle = 6
Purple circle = 2 |

#		Answer
5.	= 10 = 6 = 9	a. 10 b. 6 c. 9
6.	First, solve the second clue to find the value of , which is 3. Then we look at the third clue to find the value of . 8 – 3 – 3 = 2. The globe must be 9 + 2 = 11.	11
7.	15 students in total, 6 (4+2) had either only water or water and juice. Thus, 15 – 6 = 9 students had only orange juice.	9 [students]
8.	Using the third and first scales, we can find that 1 penguin is 24 – 17 = 7, thus, two penguins are 2×7 = 14 The second scale is not needed to solve the puzzle.	14
9.	8 right turns.	8 [right turns]
10.	a. 62÷11 = 5R7 Julie will finish to read the book in 6 days, she started to read on Friday, so, Friday + 5 = Wednesday b. It means Julie was also reading for 6 days. She finished 6×5 = 30 full pages	a. Wednesday b. 30 [pages]
11.		2 [snowmen]
12.	Hint: create a table or an organized list or work backwards	6 [years ago]

My age	2	3	4	5	6	7	8
My dad's age	34	35	36	37	38	39	40

×5

Working backwards.
I was 2 years old when dad was 34 years old, it means my dad is 34 – 2 = 32 years older. This difference is always the same.
If we need to find the time when the dad was five times older than me, it means 32 corresponds to 4 units (look at the model). 32÷4 = 8. So, I was 8 years old. It was 8 – 2 = 6 years ago.
Me
Dad

13.	You may do guess and check on the value of each icon. ❄ = 5 🎄 = 1 ⛄ = 20 87 = ⛄ ⛄ ⛄ ⛄ ❄ 🎄 🎄	⛄⛄⛄⛄❄🎄🎄 *Or* *4 snowmen, 1 snowflake, and 2 Christmas trees*
14.	In the last scale, you can take away penguin from both sides. Substitute this result into the second scale. After simplifying 1 penguin is half of globe and half of snowman. Substitute into the first scale. From here, you can see that snow globe is worth the same as a snowman. Which means 1 globe is 10.	*10*
15.	Haruki grabbed 5 + 3 + 4 + 2 + 1 = 15 jellybeans from the bag. There are 20 more than what he grabbed left in the bag, so there are 15 + 20 = 35 jellybeans left in the bag. There were 35 + 15 = 50 jellybeans at the beginning.	*50 [jellybeans]*
16.	A cube has 6 faces, and the picture shows we have 4, 7 and 8 snowflakes. The cube could have 3, 4, 5, 6, 7, 8 snowflakes or 4, 5, 6, 7, 8, 9 snowflakes. The first possibility would mean that each pair of opposite faces adds up to 11 (3 and 8, 4 and 7, 5 and 6). This would not work since we need 4 snowflakes on the opposite of 7 snowflakes while the picture is showing that the face with 4 snowflakes is adjacent to the face with 7 snowflakes. The second possibility works. The sum: 4+5+6+7+8+9 = 39	*39*
17.	If three numbers are in ratio of 2 : 3 : 4, then their squares will be in ratio of 4 : 9 : 16 → total 4 + 9 + 16 = 29 square units. 1421÷29 = 49 (square units). This mean that the original unit is worth 7. The largest number of the three is 4×7 = 28	*28*
18.	4 pm – 7 am = 9 hours, the temperature rose 9×4°F=36°F. On Jan 20 at 4pm it was 42°F + 36°F = 78°F From 4 pm Jan 20 to 8am on Jan 21, 16 hours will pass. 16×3°F = 48°F. The drop in the temperature is 78°F - 48°F = 30°F	*30 [degrees Fahrenheit]*

Solution is available on February 3, 2023
www.mathinaction.org