Math Challenge #6

SOLUTIONS

Winter

It's a season full of joy, holidays and winter activities. Enjoy the challenge!

Kinder & First Grade: solve at least 3 problems.
Second & Third Grade: solve at least 6 problems.
Fourth Grade and above: solve at least 12 problems.

	Problems	Answer
1.	One day, the temperature in December 2016 was 42 degrees Fahrenheit. it dropped 7 degrees Fahrenheit the next day. What was the new temperature?	35^0F or 35 degrees
2.	Janelle was making paperchain decorations for her school. Her pattern was: Blue, White, Green, Blue, White, Green, and so on. What would be the color of the twelfth piece?	Green
3.	An icicle was 3 inches long on Monday morning. It melted 1 inch during the day and grew 2 inches at night. On which day of the week in the morning time would the icicle be 7 inches long? 3" 2" 4" 3" 5" 4" 6" 5" 7" Monday Tuesday Wednesday Thursday Friday	Friday morning
4.	Sohil is lining up his toy cars by the Christmas tree. Out of 24 cars, half are firefighter's trucks, half of what is left are ice-cream vendor trucks, the rest are racing cars. How many racing cars are lined at the Christmas tree? 12 are firefighter's trucks 12÷2 = 6 are ice-cream vendors trucks 12 − 6 = 6 are racing cars	6 racing cars
5.	Snowflake Lane features a Nightly Parade every night from November 24 until December 24. How many days can one see this beautiful celebration? November has 30 days. 30 - 23 = 7 days in November. 24 days in December. 7 + 24 = 31 days of Snowflake Lane	31 days
6.	To glue one gingerbread house, a person needs 1 lb. of sugar icing. Shrima is hosting a gingerbread house party for her 28 classmates. How much sugar (in lb.) does she need if each one will build their own gingerbread house? 28 classmates and 1 Shrima = 29 kids. So, she will need 29 pounds of sugar icing	29 lb. of sugar icing
7.	Pacific Northwest Ballet presented Nutcracker in 1983. Anna's family attends this performance once each year. How many times did Anna see Nutcracker if she went to see it last week? 2017 – 1982 = 35 times	35 [times]
8.	*Redmond Lights* has 1 mile of luminaries, lights and performances. How long would it take for a person who is walking 20 yards a minute to travel one way? 1 mile = 1760 yds. 1760 yds. ÷ 20 = 88 minutes or 1 hour 28 minutes	88 minutes or 1 hour and 28 min
9.	60 drummers of the *Snowflake Lane* stand **equally stationed along the two sides** of 1160 feet of Bellevue Way. What is the distance between a pair of drummers (in feet)? 60 ÷ 2 = 30 drummers on each side of the lane 29 spaces in between the first and the last drummer 1160 ÷ 29 = 40ft between the pair of drummers	40 [ft.]

10.	Grandma Jane wants to buy The Marble Mania Whirler for her 3 grandchildren. If each Whirler costs $29.99 and she will pay the cashier $100 bill, what will be her change? $100 - 3×$29.99 = $10.03	*$10.03*

11.	All the kids were lined up in pairs to Santa Claus and Elves Workshop House. Eliza noticed that there were 8 pairs of kids in front of her and 7 pairs behind her. How many children were in a line? (8 +7) × 2=30, plus Eliza and her pair partner. There were 32 kids lined up	*32 kids*

12.	The year 2017 ends with 17, which is a prime number. How many more years ending on 2-digit prime will there be in this century? 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97 – 18 more years	*18 more years*

13.	Starting with the letter S on the top and only moving one letter at a time downward to the left or right, how many different paths from top to bottom spell SNOW? S N N O O O W W W W SNOW has 4 letters. There is only one letter S. There are two ways you can choose the letter N. From Each N there are two ways to choose O. From chosen O there are two ways to choose W. 1×2×2×2 = 8 ways The other way is to draw it out.	*8 [paths]*

14.	Christmas Sale prices at the LEGO Outlet Store are 50% below original prices. On Saturdays, an additional discount of 20% off the sale price is given. What is the Saturday price of a Lego technique set that has an original price of $79? 50% of $79 = $39.50 price on Christmas sale On Saturday, you'll pay 80% of $39.50 = $31.60	*$31.60*

15.	Alex can shovel snow at the rate of 20 cubic yards for the first hour, 19 cubic yards for the second, 18 cubic yards for the third, etc. Notice that she always shovels one cubic yard less per hour than the previous hour. Her driveway is 4 yards wide, 10 yards long, and covered with 3 yards deep snow. Estimate to the nearest hour how long it will take her to shovel it clean? Her driveway has 4×10×3 = 120 cubic yards of snow. After the first hour, she would have 120 – 20 = 100 cubic yards, then 100 – 19 = 81, 81 – 18 = 63, 63 – 17 = 46, 46 – 16 = 30, 30 – 15 =15, and 15 – 14 = 1 cubic yard after the seventh hour. It will take her a little more than seven hours to shovel it clean, which is closest to 7h.	*7 hours*

16.	A 65 inches tall snowman begins to melt when the sun is shining directly onto him. If the snowman loses 2 inches of height for every hour the sun shines on it, and the sun only shines 5.3 hours a day, how many days will it take to melt the snowman completely? 2 × 5.3 = 10.6 inches is melted a day 65 ÷ 10.6 = 6.13 In seven days the snowman will be melted down completely	*7 days or 1 week*

17.	A group of kids are having snowball fight during the winter break. On average 5 kids use 15 snowballs every minute and 2 kids can make 6 snowballs every 15 seconds. If you have 20 kids on your team what is the minimum number of kids you need to have making snowballs, so that your team will never run out of ammunition? 15 ÷ 5= 3 snowballs are used every minute by 1 kid 2 kids can make 6 snowballs every 15 seconds; thus 2 kids make 24 snowballs every minute. 1 kid makes 12 snowballs per minute, which is enough ammunition for 4 kids. Using snowballs : Making snowballs 4 1 → 5 units, 20÷5 = 4 kids per unit. You need 16 kids throwing snowballs and 4 kids making snowballs	*16 kids throwing snowballs and 4 kids making snowballs*

18.	Two friends are making a snowman. If they have 5 different hats, 3 different set of eyes, 2 different set of noses, 7 different colored scarves, how many different ways could they decorate the snowman? ___ ___ ___ _____ = 5×3×2×7 = 210 ways Hats Eyes Noses Scarves	*210 ways*