First Name: _____ **Last Name:** _____ **Grade:** _____

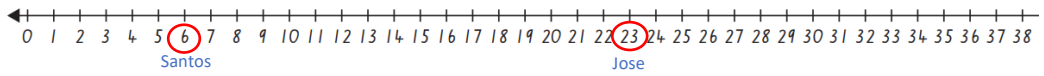
Teacher: _____ **Parent's email:** _____

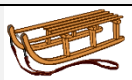
Winter Season

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.	Rishaan was reading a book about snowflakes. He read from the beginning of page 5 to the end of page 9. How many pages of the book did Rishaan read? Page 5, 6, 7, 8, and 9 → total of 5 pages.	*5 [pages]*
2.	a. $5 + 2 =$ ❄ b. $5 +$ ❄ $= 9$ c. ❄ $+ 8 = 11$ d. $4 +$ ❄ $= 11$	*a. 7* *b. 4* *c. 3* *d. 7*
3.	3 + Aidan + 2 = **6** children	*6 [children]*
4.	☃ + ☃ = ____ 7 + 11 = 18	*18*
5.	 There are 6 types of cookies, therefore, she needs to put 4+4+4+4+4+4 or 24 cookies. Or 6 × 4 = **24 cookies.**	*24 [cookies]*
6.		*Tuesday [Dec. 12]*

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
	Joon, Dec. 12			Kamia, Dec. 15		Tristan, Dec. 17

7.	Notice that the number of snowballs does not change (before and after Farah gave Maha). So, work backwards. After Farah gave Maha 6 snowballs, they have the same number of snowballs; each has 10 snowballs. Before that, Farah had 10+6 = **16 snowballs** and Maha had 10 – 6 = 4 snowballs.	*16 [snowballs]*
8.	 Draw it out. 7, 8, …, 22: 22-6 = 16 people between them.  0 1 2 3 4 5 **6** 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 **23** 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 Santos Jose Another way: Since Jose and Santos are two of the people in line, there are 38 – 2 = 36 people in line with them. That means the number of people ahead of Santos, plus the number of people between Santos and Jose, plus the number of people behind Jose is 36 people. Thus, 5 + the number of people between them + 15 = 36 → the number of people between them = 36 – 20 = **16 people.**	*16 [people]*

9.	One way: add \$35 multiple times until you reach close to \$200 but not over \$200. **35 + 35 + 35 + 35 + 35** + 35 \$175 Another way: Divide \$200 by 35. 200 ÷ 35 = **5** R25	*5 [sleds]*
10.	We can first list all the times needed: 1 hour — 4 hours — 45 min — 4 hours — 1 ¼ hours — 4 hours — 30 min Hotel — Attraction 1 — Attraction 2 — Attraction 3 — Hotel 1 hour + 4 hours + 45 min + 4 hours + 1 hour 15 min + 4 hours + 30 min = 15 hours 30 min 12 hours before 10 p.m. is 10 a.m., and 3 hours and 30 min before 10 a.m. is 6:30 a.m. So, 15 hours and 30 min before 10 p.m. is **6:30 a.m.**	*6:30 a.m.*
11.	Money received from selling snowballs and snow cones: 15×\$1.50 + 20×\$2.25 =\$22.50 + \$45 = \$67.50. Profit = \$67.50 - \$10.00 = **\$57.50**	*\$57.50 [profit]*
12.	 One-third of \$24 = \$8. To reach \$70, he needs \$70 ÷ \$8 = 8 ¾ weeks → **9 full weeks**.	*9 [weeks]*
13.	Rank them in order of their speeds from fastest to slowest. Speed = Distance/Time Emma's Speed = Distance/Time = 250 meters/45 seconds = 5.56 meters per second. Daniel's Speed = Distance/Time = 210 meters/35 seconds = 6 meters per second. Nicole's path is 5 meters longer than Daniel's (215 meters), and she finishes it in the same amount of time as Daniel, which is 35 seconds. Nicole's Speed = Distance/Time = 215 meters/35 seconds = 6.14 meters per second. Dylan's Speed = Distance/Time = 200 meters/30 seconds = 6.67 meters per second. Fastest to slowest: **Dylan, Nicole, Daniel, Emma**	*Dylan, Nicole, Daniel, Emma*
14.	**Anya covers** 1/5 of 15 miles = **3 miles.** **Bella: 1.5 miles.** Anya and Bella cover a total of 3 + 1.5 = 4.5 miles. Chelse and Dom covered 15 – 4.5 = 10.5 miles Chelsea Dom 10.5 miles 10.5 miles stand for 5 units, thus, 1 unit is 10.5 ÷ 5 = 2.1 mi. The distance Chelsea covered: 2.1 × 2 = **4.2 miles** Dom covered: 2.1 × 3 = **6.3 miles** 	*Anya: 3 mi* *Bella: 1.5 mi* *Chelsea: 4.2 mi* *Dom: 6.3 mi*
15.	The first snowplow takes 4 hours to clear the road. This means it can complete 1/4 of the road in one hour. The second (more efficient snowplow) takes 2 hours to clear the same road. It can complete 1/2 of the road in one hour. In one hour, they complete ¼ + ½ = ¾ of the road. Thus, to find how many hours it takes to clear the entire road, it will be 1/¾ = 4/3 hours, which is equivalent to **1 hour and 20 min.** Another way: If you were to give the second snowplow 4 hours, it would be able to clean two road of the same lengths. So, in 4 hours two of the mentioned snowplows can clean 3 roads. This means it will take them 4÷3 = **1 $^1/_3$ hour** = **1 hour and 20 minutes** to clean just one road.	*1 hour and 20 minutes* *or 80 minutes* *or* $1\frac{1}{3}$ *hrs.*
16.	The number of hours James worked: \$1728 ÷ 18 = 96 hours. Factoring 96 gives us possible solutions: 1 x 96, 2 x 48, 3 x 32, 4 x 24, 6 x 16, 8 x 12. There are 30 days in November, and 30 ÷ 7 = 4 Sundays. Thus, only **four** hours for 24 days meet all the conditions.	*4 [hours]* *24 [days]*

17.	 a. How many inches of snow has fallen during the snowstorm? At first it snowed 1 inch per hour for 8 hours = 8 inches. Then 1.5 in/hr. for 6 hours = 9 inches. At the end it snowed 2 in/hr. ×10 hr. = 20 inches. 8 + 9 + 20 = 37 inches of snow has fallen during the snowstorm. b. What was the average rate of snowfall during the 24-hour period? The average snow rate is the total amount of snow fallen in 24-hour period. So, the average snow rate is 37/24 = **$1\ {}^{13}/_{24}$ inch per hour ≈ 1.54 inches per hour**	*a. 37 [inches]* *b. $1\ {}^{13}/_{24}$ in/hr. or 1.54 in/hr.*
18.	One way to solve: At the beginning Zainab is 365 – 23 = 342 seashells ahead of Brianna. At the end, they have the same number of seashells, which means somehow Brianna needs to catch up with Zainab. Brianna is faster, she finds 59 shells versus Zainab's 21 shells. Thus, Brianna gains 59-21 = 38 more shells each day. They end with the same number of shells, thus, 342 ÷ 38 = **9 days.** The holiday on the seaside was 9 days long. Another way to solve it: Let the length of the holiday be x days. At the end of the holiday Zainab had 365 + 21x; at the end of the holiday Brianna had 23 + 59x. 23 + 59x = 365 + 21x 59x = 342 + 21x 38x = 342 x = 9 The holiday lasted **nine** days.	*9 [days]*

Solution is available on January 5, 2024
www.mathinaction.org