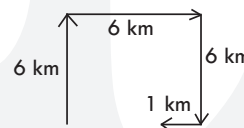


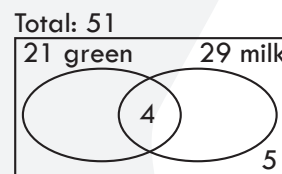
## 2022 Grade Three Spirit of Math Contest Solutions

- 1) **D** Relocate to calculate:  $7 + 6 + 13 + 9 + 14 + 1 = 7 + 13 + 6 + 14 + 9 + 1$   
 $= 20 + 20 + 10$   
 $= 50$
- 2) **B** There are seven days in a week, so it was cloudy on  $7 - 3 = 4$  days.
- 3) **A** The pattern is @C®@C® repeated, so the next symbol after ® is @.
- 4) **D** One dozen is 12, so two dozen is  $2 \times 12 = 24$ .
- 5) **C** The only number that is written the same forwards and backwards is 1221.
- 6) **B** Each of the 5 bicycles has 2 tires so Sam inspects  $5 \times 2 = 10$  tires.
- 7) **A** Two hours before 9:45 p.m. is 7:45 p.m.
- 8) **C** A hexagon has six sides, so  $5 \times 6 = 30$ .
- 9) **D** The only dotted line that is a line of symmetry is shown in option D.
- 10) **D** The pattern is to add 1 to the first term, 2 to the second term, and so on. Continuing the pattern, 4 is added to the fourth term to get the next term:  $9 + 4 = 13$ .
- 11) **B** A grasshopper needs  $240 \div 20 = 12$  jumps and the frog needs  $240 \div 60 = 4$  jumps to go across the log that is 240 cm long. Therefore, the frog will take the least number of jumps.
- 12) **C** Since each ▲ represents three animals, Stephanie saw  $3 \times 4 = 12$  sheep.
- 13) **C** One-half of 20 is  $20 \div 2 = 10$ , so 10 of Soleila's friends can play the piano.
- 14) **C** All the numbers Matilda likes are multiples of 5. Of the numbers given, only 45 is a multiple of 5.
- 15) **C** A) "Who is the oldest person?" does not help solve the problem.  
 B) "How old is Khalil?" is the question that is asked in the problem.  
 C) "How old is Lei?" is the first logical question that you should ask to solve the problem.  
 D) "How old is Sean?" is given in the question.

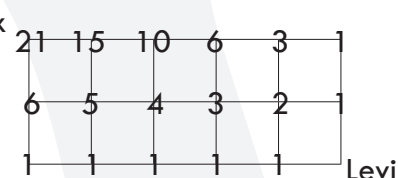
- 16) **B** John travels 6 km north (up), 6 km east (right), 6 km south (down) and 1 km west (left) leaving him  $6 - 1 = 5$  km away from his starting point.



- 17) **A** An average is an equal distribution. To find the average number of cookies sold, add up the cookies and divide, or distribute, them equally among the 3 people. There are  $20 + 12 + 10 = 42$  cookies, so the average number of cookies sold is  $42 \div 3 = 14$ .
- 18) **D** Since ◻ and ○ together are equal to ◻, then ◻ without ○ is ◻.
- 19) **A** There are  $21 + 29 = 50$  orders of green tea or milk tea, but there are only  $51 - 5 = 46$  customers who ordered these drinks. So,  $50 - 46 = 4$  customers have been counted twice. Therefore, 4 customers ordered both.



- 20) **D** The number of ways Levi can take each intersection is shown in the diagram to the right. Each intersection is the sum of its two preceding intersections. Therefore, there are 21 different pathways from Levi to Max.



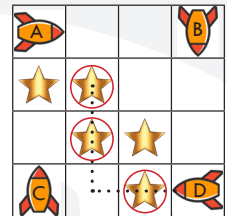
## 2022 Grade Three Spirit of Math Contest Solutions

- 21) **C** On the map, 2 cm represents approximately 20 000 km. Therefore,  $2 \div 2 = 1$  cm represents approximately  $20\ 000 \div 2 = 10\ 000$  km.
- 22) **D** The worst case scenario is if I pick 6 milk chocolates and 6 dark chocolates before I pick any white chocolates. After picking  $6 + 6 = 12$  chocolates, the next one will certainly be a white chocolate. So, I have to pick  $12 + 1 = 13$  chocolates in total.
- 23) **C** Add the number of trees Sakura will plant until you get 36:  
 $1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 = 36$ . So, it will take Sakura 8 months to plant the trees. Counting backwards, Sakura will plant 8 trees in December, 7 in November, 6 in October, and so on. So, she should plant the first tree in May.
- 24) **C** Work backwards to calculate my uncle's birthday:  $2 - 1 + 7 - 4 + 3 = 7$  (July 7). Similarly, my aunt's birthday:  $2 - 2 + 6 - 3 + 4 = 7$  (July 7). Therefore, they have the same birthday.
- 25) **B** Add the pencils and erasers together to find the cost of 5 pencils and 5 erasers:

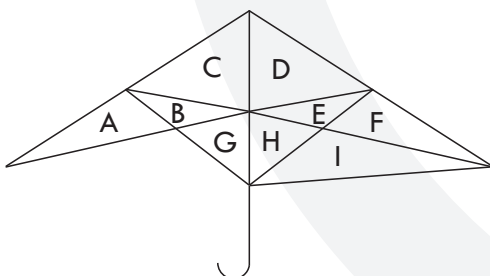
$$\begin{array}{r} 2 \text{ pencils} + 3 \text{ erasers} = \$8 \\ + 3 \text{ pencils} + 2 \text{ erasers} = \$7 \\ \hline 5 \text{ pencils} + 5 \text{ erasers} = \$15 \end{array}$$

Therefore 1 pencil and 1 eraser cost  $\$15 \div 5 = \$3$ .

- 26) **D** Follow the instructions with each spaceship to see which will collect the most stars. Spaceship A will collect 1 star, spaceship B and C will collect 2 stars each and Spaceship D will collect 3 stars. Spaceship D will collect the most (3) stars, as shown in the path to the right.



- 27) **B** If Star 3 weighs 64 g, so does Star 4. Then Star 1 must weigh  $64 + 64 = 128$  g. Altogether, the left side of the toy weighs  $64 + 64 + 128 = 256$  g. The right side must weigh the same, so Star 2 weighs  $256 \div 2 = 128$  g, Star 5 weighs  $128 \text{ g} \div 2 = 64$  g, Star 6 weighs  $64 \div 2 = 32$  g, and both Star 7 and 8 weigh  $32 \div 2 = 16$  g.
- 28) **C** In the given words, the vowels are equal to 1 and the consonants are equal to 2. Replace the letters in each word with their value and add the values to find which word is equal to 10. Since  $S + I + L + V + E + R$  is  $2 + 1 + 2 + 2 + 1 + 2 = 10$ , the word is SILVER.
- 29) **B** In the 4 by 4 by 4 cube, there are a total of  $4 \times 4 \times 4 = 64$  little cubes. There is a 2 by 2 by 2 cube within the bigger cube that has not been painted, made of  $2 \times 2 \times 2 = 8$  little cubes. Therefore,  $64 - 8 = 56$  cubes are painted.
- 30) **C** Label each region and make a chart to help you count:



# of Letters	Names of Triangles	# of Triangles
1	A, B, C, D, E, F, G, H, I	9
2	AB, BG, EF, EH, FI, HI	6
3	ABC, BCG, BGH, DEF, DEH, EGH	6
4	ABCD, BGHI, CDEF	3
5	DEFHI	1
<b>Total:</b>		<b>25</b>

