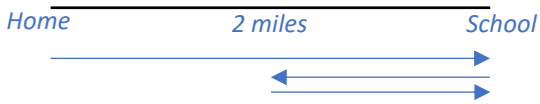
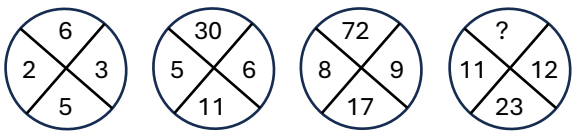
Math Challenge #2

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.	Sarah invited 3 friends for a playdate. Tia arrived before Maria. And Ben arrived after Tia. Who arrived first for the playdate?	*Tia*
2.	There were 8 cookies on the plate before Shauna took 1 cookie and Anita took 2 cookies. How many cookies were on the plate after Shauna and Anita took some? 8 – 1 – 2 = 5 cookies.	*5 [cookies]*
3.	I have a math test on Friday, which is tomorrow. My teacher helped me prepare for the test yesterday. What day was yesterday? *WED yesterday* *THU today* *FRI test*	*Wednesday*
4.	Michael is thinking of a number. When he added 8 to it, he gets 15. What is the number that Michael is thinking of? <u>A number</u> + 8 = 15. The number is 15 – 8 = 7	*7*
5.	 Halfway to school is 1 mile. 2 + 1 + 1 = **4 miles**	*4 [miles]*
6.	Working backward: ***WED*** *THU* *FRI* *SAT* *SUN* *Day before yesterday* *yesterday* *today* *tomorrow* *day after tomorrow*	*Wednesday*
7.	10 minutes before 9:30 a.m. is 9:20 a.m. Since I was 5 minutes late at 9:20 a.m., the bus I missed must have arrived at **9:15 a.m.**	*9:15 a.m.*
8.	There are 14 of them and each can eat 2 slices, she will need a minimum of 28 slices. Each pizza has 8 slices; therefore, three pizzas will not be enough. She should order **4 pizzas**.	*4 [pizzas]*
9.	In order to have a quotient of 1, the two numbers have to be identical. The number that fits this condition is **12**. Let's check: 12 + 12 = 24, and 12 divided by 12 is 1.	*12 and 12*
10	 Notice that the top number on each circle is the product of the two numbers on the sides, and the bottom number is the sum of the two numbers on the sides. 11×12 = **132**	*132*
11.	We can list possibilities: 10×10, 20×5, 25×4, 50×2, 100×1. The only pair that fits the condition is **25 and 4**. 25 – 4 = 21	*25 and 4*

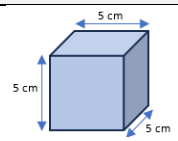
12.

33	*a*	14	*b*
12	18	31	*c*
d	*e*	7	23
f	21	28	*g*

14 + 31 + 7 + 28 = 80, so, 80 is the sum of each row/column/diagonal.
c (second row) = 80 – (12+18+31) = 19
g (diagonal) = 80 – (33+18+7) = 22
b (last column) = 80 – (19+23+22) = 16
f (last row) = 80 – (22+28+21) = 9
d (first column) = 80 – (33+12+9) = 26
a (first row) = 80 – (33+14+16) = 17
e = 80 – (17+18+21) = 80 – (26+7+23) = 80 – (16+31+9) = **24**

24

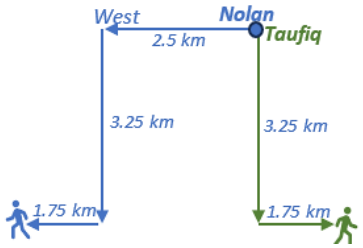
13.



The maximum number of edges you can trace (without retracing) is 9.
Therefore, the total distance is 9×5 = **45** cm.

45 [cm]

14.



1.75 + 2.5 + 1.75 = **6 km**

6 [km]

15.

Draw the model

Comparing two models, when John gave $15 to Damian and when Nick gave $15 to Damian, we can see that half of Nick's money is $30. Which means, Nick had $60, John $45, and Damian $30. In total $30 + $45 + $60 = **$135**

135

16.

Total number of math club members and total number of non-members should be fully divisible by number of students in a section. Also, since we want as fewer section as possible, the number of students in a section should be as high as possible. Therefore, the number of students in each section = Maximum possible number which fully divides both number of math club members and non-members. We need to find GCF of 210 and 308.
Prime factorization of 210 = 2 × 3 × 5 × 7, and prime factorization of 308 = 2 × 2 × 7 × 11. Both numbers are divisible by 1, 2, 7, and 14. If the Principal wants to have the smallest number of sections, then there must be more people in each section. The GCF(210, 308) = 2 × 7 = 14.
The number of sections = the total number of students/number of students in each section =
= (210+308) ÷ 14 = 518 ÷ 14 = **37**.

37 [sections]

17.

Let's find the factors of 80. The sum of all 4 numbers is 39, thus the factors are below 40. 80 = 4×20=8×10=16×5
The numbers are 5, 8, 10, 16. Check: 8 + 10 + 5 + 16 = 18 + 21 = 39. The largest number is 16.

16

18.

If, 9 ♣ 8 = 289, 3 ♣ 5 = 64 and 3 ♣ 4 = 49, find the value of 5 ♣ 6.
When we look at the numbers, notice that the result is the square of the sum of the 2 digits between ♣.
$289 = 17^2$, $64 = 8^2$, $49 = 7^2$
5 ♣ 6 = 11^2 = **121**

121

Solutions are available on October 11, 2024
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