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.	A frog jumps on every rock, from rock number 2 to 8. How many jumps does the frog make? 2 3 4 5 6 7 8	*6 [jumps]*
2.	Gina came home from grocery shopping with the following fruits: How many fruits did she buy?	*13 [fruits]*
3.	Lisa wrote the word **CHALLENGE** three times. How many times did she write the letter **E**? Each time she wrote the word CHALLENGE, she wrote 2 Es. Since she wrote the word three times, she wrote 2 Es three times, which totaled to 2 + 2 + 2 = 6.	*6 [times]*
4.	Cinar received a coloring book as a present. He colored page number 4 through page number 10. How many pages did Cinar color? Including page number 4 and page number 10, there are 7 pages in total.	*7 [pages]*
5.	After selling 19 tickets, Donna had 5 tickets left to sell. How many tickets did she have at the beginning? Donna had 19 + 5 = 24 tickets at first.	*24 [tickets]*
6.	Sue weighs 43 pounds. Sam, her brother, is 6 pounds lighter than her. Max, Sam's best friend is only 2 pounds heavier than Sam. How heavy is Max? Sue: 43 pounds; Sam: 43 – 6 = 37 pounds; Max: 2 + 37 = 39 pounds	*39 [pounds]*
7.	Twenty children sit in a row watching a singing recital. Alden is the 12th child from one end of the row. Myra is the 16th child from the other end of the row. How many children are sitting between Alden and Myra? Alden 12th 16th Myra There are 6 children between them.	*6 [children]*
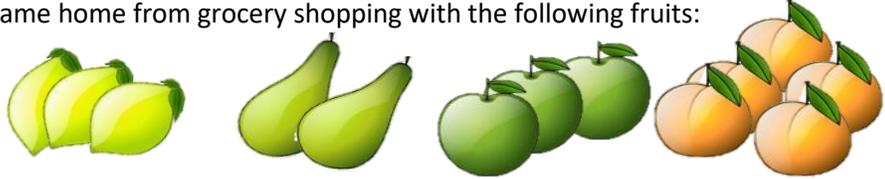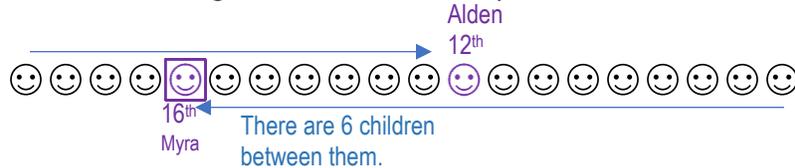
8.	How many rectangles (of any size) can you count in the figure below? Hint: there are more than 4 rectangles.	*9 [rectangles]*
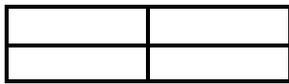
Four small rectangles

Two of these rectangles

Two of these rectangles
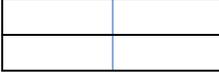
One large rectangle

9.	Helen wrote out all the numbers from 5 to 60 on a piece of paper. How many times did she write the digit 5? 5, 15, 25, 35, 45 → 5 times 50, 51, 52, 53, 54, **55**, 56, 57, 58, 59 → 11 times } Total = 5 + 11 = 16	*16 [times]*

10.	Leah is making a poster for the Math Challenge. She draws the words **MATH CHALLENGE** on the poster. Each day she paints one letter. If she paints the first letter on a Sunday, what day of the week will it be when she paints the last letter? Make an organized table:	*Friday*

Mon	Tue	Wed	Thu	Fri	Sat	Sun
						M
A	T	H	C	H	A	L
L	E	N	G	E		

| 11.	Sara sister bragged that she had 30 different new outfits to wear to school. Her younger brother Bill said, "That's not true. You have 3 pairs of jeans, 5 shirts, and 2 pairs of shoes. There's no way that makes 30 different outfits. You only have 10 outfits." Who is correct and why? **The older sister is correct.** There are 30 different ways to mix and match the jeans, shirts, and shoes. One pair of jeans goes with 5 shirts, so there are (3 x 5) or 15 jeans/shirts combinations. Each of these combinations can be worn with either of two pairs of shoes, which makes (15 x 2) or 30 different outfits.	*The older sister is correct because there will be 3 x 5 x 2 = 30 jeans/shirts/shoes combinations.*

12.	The numbers 34 and 124 have the same sum of their digits (3 + 4 = 7 and 1 + 2 + 4 = 7). What is the first number greater than 2019 that has the sum of the digits the same with the sum of the digits of 2019? 2+0+1+9 = 12 Then closest year will begin on 20, the rest two digits must add up to 10. The answer is 2028	*2028*
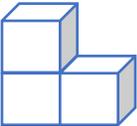
13.	Maya glued 3 cubes together (as shown in the picture) and then she painted **all** surfaces with blue paint. How many squares did she paint? Count all square surfaces: 3 + 3 + 2 + 2 + 2 + 2 = 14	*14 [squares]*

14.	Lisa has a large container of fruit that contains only bananas, apples and peaches. The container has 9 bananas, 3 red apples and 5 green apples. If the total number of pieces of fruit is four times the number of apples in the container, how many peaches are in the container? The number of apples is 3 + 5 = 8. The total number of fruits is 4 × (3 + 5) = 32. Therefore, the number of peaches is 32 - (9 + 3 + 5) = 15.	*15 [peaches]*

15.	Five students hold an arm-wrestling tournament. In the first round, each of the students arm-wrestle each of the other students just once. How many different matches are played in the first round? Hint: make an organized list.	*10* [matches]

Assume that there are student A, B, C, D, and E.

Make an organized list:

AB AC AD AE

    BC BD BE

        CD CE

            DE

Notice that by organizing the list (each pair in row 1 start with A, each pair in row 2 starts with B, and so on, makes it easier to see what's going on. The five students will play **ten different matches** in the first round.

16.	Jonah likes to skip stones at the neighborhood pond. He collected 15 rocks and separated them into 4 piles. Each pile has a different number of rocks. What is the smallest possible number of rocks that could be in the largest pile?	*6 [rocks]*

One way to solve it:

Think of the different ways 15 rocks can be distributed into 4 piles are:

(1, 2, 3, 9), (1, 2, 4, 8), (1, 2, 5, 7), (1, 3, 4, 7), (1, 3, 5, 6), (2, 3, 4, 6).

Therefore, the number of rocks in the largest pile of each distribution may be 6, 7, 8, or 9.

The smallest of these is **6**.

17.	When the order of the digits of 1991 is reversed, the number remains the same. How many counting numbers between 100 and 1000 remain the same when the order of the number's digits is reversed?	90 [numbers]

Any number in the form of ABA will be the same when the order of the digits is reversed.

So, A can be any digit (1-9), except zero; B can be any digit (0-9). Since there are 9 choices for A and 10 choices for B, there are 90 counting numbers which satisfy the given conditions.

Another way to solve:

List out the numbers and look for a pattern: **10 numbers x 9 rows = 90 numbers**

101 111 121 131 141 151 161 171 181 191

202 212 222 232 242 ... ...

303 313 ... ...

...

909 919

18.	A local basketball league has nine teams. During the season, each of the nine teams plays exactly three games with each of the other teams. What is the total number of games played?	*108* [games]

If each team played just one game with each of the remaining teams, then each of the nine teams plays eight games. This make a total of 9 x 8 = 72 games. But each game has been counted twice in this total. For example, the game between Team A and B appears in A's 8 games and also B's 8 games. Therefore, there are 9 x 8 / 2 = 36 different games played. Since each game is played three times, the total number of games played is 3 x 36 = 108.