1. If you were to add up all of the numbers from 1 to 100, and you only had 10 seconds, how would you do it? It is said that Carl Friedrich Gauss, a mathematician in the 1700's, impressed his elementary school teacher because he did it in seconds when it was meant to waste their time.

2. Today is Thursday. What day of the week will it be in 21 days? 45 days? 745 days? How do you know?

3. Choose a three digit number, let's call it ABC, where A,B, and C each represent a digit, and reverse the digits, then subtract it to get DEF. Now reverse those digits and add it to DEF and you should get a specific number. What is it? And why does this happen?

4. Can you make each of the expressions = 6 using the common mathematics operations and the factorial? Parenthesis are allowed. (Factorial means to multiply by all numbers lower than the number specified, so 5! = 5*4*3*2*1 = 120)

1	1	1	= 6	5	5	5	= 6
2	2	2	= 6	6	6	6	= 6
3	3	3	= 6	7	7	7	= 6
4	4	4	= 6	8	8	8	= 6

5. In the novel, *Ender's Game*, the main character is a six-year-old who is chosen to train for war against aliens. Sometimes, to calm himself or fall asleep, he would calculate the powers of two as far as he could <u>in his head.</u> Early in the story, he can make it to 67,108,864 before becoming unsure. How far can you make it?

6. Look at the following image and find out how it relates to this problem: What is 1/4 + 1/16 + 1/64 + 1/256 + …. ? What is the solution to this infinitely long addition problem?