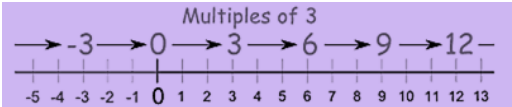# Math Challenge #6

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

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

Multiples

In mathematics, a **multiple** is the product of any quantity and an integer. In other words, a **multiple of a number** is that number multiplied by an integer. When you were learning your times tables, you were learning multiples. For examples, 2, 4, 6, 8, and 10 are multiples of 2. To get these numbers, you multiplied 2 by 1, 2, 3, 4, and 5, which are integers.

More examples:

- Some multiples of three are: 3, 6, 9, 12 and so on.
- 12 is a multiple of 3, as 3 x 4 = 12
- -6 is also a multiple of 3, as 3 x -2 = -6

> **Facts About Multiples:**
> *Each number is a multiple of itself.*
> *Every number is a multiple of 1.*
> *Zero is a multiple of every number.*
> *The first multiple of every number is the number itself. So a multiple of a number cannot be less than the number.*
> *Multiples of any number are infinite.*

Kinder & First Grade: solve <u>at least</u> 3 problems.
Second & Third Grade: solve <u>at least 6</u> problems.
Fourth Grade and above: solve <u>at least 12</u> problems.

	Problems	*Answer*
1.	If Ron doubles the number of marbles he has, he will have 12 marbles. How many marbles does Ron have?	
2.	Courtney completed 4 puzzles this week. John completed 3 times the number of puzzles that Courtney completed. How many puzzles did John complete?	
3.	Donny has $4. Samuel has 4 times as much as Donny. How much do they have altogether?	
4.	How many multiples of 3 are there between 10 and 20? *Hint: list multiples of 3.*	
5.	What is the smallest possible number that is a multiple of 3 and also a multiple of 5?	
6.	Grant and Henry run the SOLVE IT DETECTIVE AGENCY. Henry solved 56 mysteries. That was 7 times as many mysteries as Grant solved. How many fewer mysteries did Grant solve than Henry?	
7.	What is the <u>*largest possible number*</u> less than 30 that is a multiple of 3 and 4?	
8.	During the summer months, one ice cream truck visits the Spring Tree's neighborhood every 4 days and another ice cream truck visits the neighborhood every 5 days. If both trucks visited today, when is the next time both trucks will visit on the same day?	

| 9. | What number is a multiple of 7, also a multiple of 4, larger than 30, and smaller than 70? | |

| 10. | During the summer, Anika read 9 times as many books as Janelle. Together they read a total of 120 books. How many books did Anika read? | |

| 11. | Together, Luisa and Elly have 104 games in their collections. Luisa collected 7 times as many games as Elly. How many more games does Luisa have than Elly? | |

| 12. | On September 30, James' and Shota's soccer teams both used the 160 acre-field for soccer practice. James' team uses the field every 3 days and Shota's team uses it every 5 days. During the month of October, how often will the teams use the field on the same day? | |

| 13. | My age this year is a multiple of 6. Next year it will be a multiple of 7. I am more than 20 years of age but less than 75. How old will I be 5 years from now? | |

| 14. | Nora was helping Tanay assemble hamburgers at the school cookout. Tanay told Nora to put onions on every eighth hamburger, honey-mustard on every third hamburger, and a slice of cheese on every second hamburger. Which hamburger will be the first to have all three items? | |

| 15. | Dora has a bunch of coins. Find out how many coins she has using the following clues:
• When she puts an equal amount in each of 9 bags, she has none left over.
• When she puts an equal amount in each of 6 bags, she has none left over.
• When she puts an equal amount in each of 5 bags, she has two left over. | |

| 16. | When a counting number is multiplied by itself, the result is a square number. Examples of square numbers are 1, 4, 9, 16, and so on. How many square numbers are there from 101 to 1000? | |

| 17. | 3, 6, 9, 12, … are some multiples of 3. How many multiples of 3 are there between 10 and 170? | |

| 18. | The numbers from 1 to 200 that are not multiples of 3 or 5 are arranged from the smallest to the largest. What is the 101st number? | |