**Piggy Bank Ca$h**



**Meredith has just emptied her piggy bank, and is surprised to see how much money is inside! Along with many coins, there are LOTS of dollar bills, and it’s these bills that grab her attention…**

**She notices that:**

* When she arranges her dollar bills into stacks of six, she has three bills left over.
* When she makes stacks of eight, she has seven bills left over.
* When she organizes her dollar bills into stacks of five, she has four left over.

1. **Assuming that Meredith has fewer than 100 one-dollar bills, how many would she have left over if she piled them in stacks of nine?**
2. **What if there were between 100-200 dollar bills in her piggy bank, and she stacked them in the same ways, THEN how many would be left over if she put them into stacks of nine?**

* Be sure to show HOW you arrived at your answer using a model, equation, table, etc.
* Be PRECISE in your calculations!
* Also, be ready to justify your work to the class!

1. The answer is 3.

ONE way of solving this problem is to make a list of multiples of 8 with seven added to each multiple, and then do the same with multiples of 6 with 3 added on, and finally do the same with multiples of 5 with 4 added on. Then, compare the lists to see which result is common to all 3 lists.

Multiples of 8 Multiples of 6 Multiples of 5

(with 7 added) (with 3 added) (with 4 added)

8 + 7 = 15 6 + 3 = 9 5 + 4 = 9

16 + 7 = 23 12 + 3 = 15 10 + 4 = 14

24 + 7 = 31 18 + 3 = 21 15 + 4 = 19

32 + 7 = 39 24 + 3 = 27 20 + 4 = 24

40 + 7 = 47 30 + 3 = 33 25 + 4 = 29

48 + 7 = 55 36 + 3 = 39 30 + 4 = 34

56 + 7 = 63 42 + 3 = 45 35 + 4 = 39

… … …

That means that she must have had 39 one dollar bills in her piggy bank, and

= 4 R3

“left over”

2. Using a similar strategy as shown above, there would be 159 dollar

bills and, since 159 9 = 17 R6, there would be 6 dollar bills left

over.