Name _____ Period_____ Date_____

Divisibility – by 2, 3, 4, 5, 6, 8, 9 and 10

A number is divisible:

- by 2, if the number ends in 0, 2, 4, 6 or 8. In other words, the number must be even.
- by 3, if the sum of the digits is a multiple of 3.
- by 4, if the last 2 digits of the number is divisible by 4.
- by 5, if the number ends in 0 or 5.
- by 6, if the number ends in 0, 2, 4, 6 or 8 AND the sum of the digits is a multiple of 3. (In other words, if the number is divisible by 2 and 3, then it is by 6.)
- by 8, if the last 3 digits of the number is divisible by 8.
- by 9, if the sum of the digits is a multiple of 9.
- by 10, if the number ends in 0.

Place a check in each box if the given number is divisible by 2, 3, 5, 6, 9, and/or 10.

	Number	By 2	By 3	By 4	By 5	By 6	By 8	By 9	By 10
Example:	40	✓		✓	✓		✓		✓
1.	16								
2.	21								
3.	54								
4.	87								
5.	100								
6.	150								
7.	720								
8.	1,147								
9.	1,296								
10.	4,280								
11.	45,864								
12.	78,192								
13.	36,432								

Name _____ Period_____ Date_____

14.Looking at the table you just completed, do you notice any pattern(s) when a number is divisible by 8? Explain.

15. Looking at the table you just completed, do you notice any pattern(s) when a number is divisible by 4? Explain.

16. Looking at the table you just completed, do you notice any pattern(s) when a number is divisible by 10? Explain.

17. Looking at the table you just completed, do you notice any pattern(s) when a number is divisible by 9? Explain.

18. Looking at the table you just completed, do you notice any pattern(s) when a number is divisible by 6? Explain.

Write 2 different 5-digit numbers that are divisible by 4 and 9. __ __ , __ __ __ __ __ , __ __ __

19. Write a 4-digit and a different 5-digit number that is divisible by 3 and 8.

__ , __ __ __ __ __ , __ __ __

20. What single digit(s) could the "?" represent in the following:

EXAMPLE: 3,41? If it is divisible by 2 and 3?

Since the number must be divisible by 2, it must be even, so I only need to check the digits 0, 2, 4, 6 or 8 (the digits that would make this number an even).

To be divisible by 3, the sum of the digits must be a multiple of 3.
So, if the ? represents 0 the sum would be 8. That doesn't work.
If the ? represents 2, the sum would be 10. That doesn't work.
If the ? represents 4, the sum would be 12. That does work.
If the ? represents 6 the sum would be 14. That doesn't work.
If the ? represents 8, the sum would be 16. That doesn't work.

SOLUTION: ? could only be a 4. So 3,414 would be divisible by 2 and 3.

a. 12,51? if it is divisible by 2 and 3?

b. 2,34 ? if it is divisible by 3 and 4?

c. 6,1?2 if it is divisible by 4 and 9?

d. 4,72? if it is divisible by 3 and 8?