



Divisibility – by 2, 3, 5, 6, 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 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 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 5	By 6	By 9	By 10
Example:	30	✓	✓	✓	✓		✓
1.	15						
2.	18						
3.	54						
4.	99						
5.	120						
6.	300						
7.	525						
8.	700						
9.	1,269						
10.	1,503						
11.	2,100						
12.	3,000						
13.	4,410						
14.	6,060						



Name _____ Period _____ Date _____

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

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

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

18. Write 2 different 5-digit numbers that are divisible by 2 and 9. ___ , _____ ___ , _____

19. Write a 4-digit and a different 5-digit number that is divisible by 6 and 9.
 ___ , _____ ___ , _____

20. What single digit(s) could the “?” represent in the following examples if it is known to have the other two numbers as factors:
 Example: 9,1?5 if it is divisible by 3 and 5?
 Since the number ends in 5 it is already divisible by 5.
 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 15. That works.
 If the ? represents 1, the sum would be 16. That doesn’t work.
 If the ? represents 2, the sum would be 17. That doesn’t work.
 If the ? represents 3 the sum would be 18. That works.
 If the ? represents 4, the sum would be 19. That doesn’t work.
 If the ? represents 5, the sum would be 20. That doesn’t work.
 If the ? represents 6 the sum would be 11. That works.
 If the ? represents 7, the sum would be 22. That doesn’t work.
 If the ? represents 8, the sum would be 23. That doesn’t work.
 If the ? represents 9 the sum would be 24. That works.
 SOLUTION: ? could be a 0, 3, 6 or 9.

- a. 12,51? if it is divisible by 2 and 9?
- b. 2,34 ? if it is divisible by 3 and 5?

- c. 56,2?0 if it is divisible by 6 and 9?
- d. 3,41? If it is divisible by 2 and 3?