## **Test for Divisibility of Numbers**

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In order to find whether or not a number is divisible by another number, we perform actual division and see whether the remainder is zero or not. But this method is time consuming. Therefore, the test of divisibility explains whether or not the given number is divisible by the other number without actual division.

Let us see whether we can find a pattern that can tell us whether a number is divisible by 2,3,4,5,6,7,8,9,10 or 11 through the following table:

Test of Divisibility by	Conditions	Examples	Remarks
2	A number is divisible by 2 if its ones digit is 0,2,4,6 or 8.	6582, 1800, 16758 etc. are divisible by 2.	The number divisible by 2 are called even numbers.
3	A number is divisible by 3, if the sum of its digits is divisible by 3.	60891, 15924 etc, are divisible by 3. In 60891: 6+0+8+9+1 =24, which is divisible by 3.In 15924:1+5+9+2+4 =21, which is divisible by 3.	
4	A number is divisible by 4, if the number formed by the two right-most digits (ones & tens) is a multiple of 4 (or divisible by 4). Or both digits are 0.	93812, 199416,31520,10028,2500 etc. are divisible by 4.	A number which is divisible by 4 is also divisible by 2.
5	A number is divisible by 5, if the digits at its ones place is either 5 or 0.	5120, 9965, 89920 etc, are divisible by 5.	
6	A number is divisible by 6, if the number is even and sum of its digits is divisible by 3.	5922, 6060, 7182 etc, are divisible by 6.	A number divisible by 6 is also divisible by 2 and 3.
7	A number is divisible by 7, if the difference between twice the last digit and the number formed by other digits is	889, 2975, 1617, 392 etc are divisible by 7.	
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/	either 0 or a multiple of 7.					
8	A number is divisible by 8, if the number formed by last three digits of the number is divisible by 8.	100024, 987048, etc are divisible by 8. In 100024, the number 02 and 24 is divisible by 8.	A number divisible by 8 is also divisible by 2 and 4.			
9	A number is divisible by 9, if the sum of its digits is divisible by 9.	1899, 6666, 5886 etc are divisible by 9.	A number divisible by 9 is also divisible by 3.			
10	A number is divisible by 10 if the digit at the ones place of the number is 0.	1000, 9950, 39280, etc are divisible by 10	A number which is divisible by 10 is also divisible by 2 and 5.			
11	A number is divisible by 11, if the difference between the sums of alternate digits is either 0 or a multiple of 11.	6446: 6+4 =10 4+6 = 10 Since 10-10 = 0 Hence, 6446 is divisible by 11. Similarly, 27896, 135795 etc are divisible by 11.	Multiplication Magic: Multiplication of 11 by 13 i.e., 13×11 Add the digits of that number which is multiplied by 11 i.e., in 13, 1+3=4. Introduce this number in the middle of 13. Now, the product of 13×11 will be 143			