Divisibility Rules by Rohit Nirmal

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Dividing by 2

1. All even numbers are divisible by 2, e.g., all numbers ending in 0,2,4,6 or 8.

Dividing by 3

1. Add up all the digits in the number.
2. Find out what the sum is. If the sum is divisible by 3, so is the number
3. For example: 12123 (1+2+1+2+3=9) 9 is divisible by 3, therefore 12123 is too!

Dividing by 4 (Method 1)

1. Are the last two digits in your number divisible by 4?
2. If so, the number is too!
3. For example: 358912 ends in 12 which is divisible by 4, thus so is 358912.

Dividing by 4 (Method 2)

1. If the number is not even it is not divisible by 4.
2. Since 4 = 2 * 2, divide the number by 2, yielding n. n must be even, and so must be divisible by 2, else the number is not divisible by 4.
3. For example: 358912 is divisible by 2. So, it may be divisible by 4.
4. 358912/2 = 179456, which is even and thus divisible by 2.
5. Hence the number 358912 is divisible by 4.

Dividing by 5

1. Numbers ending in a 5 or a 0 are always divisible by 5.

Dividing by 6 (Mathod 1)

If the Number is divisible by 2 and 3 it is divisible by 6 also, since 6 = 2 * 3, and 2 and 3 have GCF = 1.

Dividing by 6 (Method 2)

Since 6 = 2 * 3, the number must be divisible by 2 else it is not divisible by 6.

Get m = number /2 --- Now m must be divisible by 3.

Dividing by 7 -- No rule to remember. Just divide by 7 and see.

Dividing by 8

1. Since 8 = 2 * 4, the number must be divisible by 2 else it is not divisible by 8.

2. Get m = number /2

3. Check that m is divisible by 4, if not, the number is not divisible by 8.

Dividing by 9 (Method 1)

1. Almost the same rule and dividing by 3. Add up all the digits in the number.
2. Find out what the sum is. If the sum is divisible by 9, so is the number.
3. For example: 43785 (4+3+7+8+5=27) 27 is divisible by 9, therefore 43785 is too!

Dividing by 9 (Method 2)

4. Since 9 = 3 * 3, the number must be divisible by 3 else it is not divisible by 9.
5. Get m = n/3
6. m must be divisible by 3

Dividing by 10

1. If the number ends in a 0, it is divisible by 10.

Some Rules of divisibility

if a number is divisible by 3 and 7, it is also divisible by 21 since 3 and 7 have GCF=1.

If a number is divisible by 11 and 9, it is also divisible by 99 since 11 and 9 have a GCF of 1.

But if a number is divisible by 4 and 16, it is not necessarily divisible by 64 since 4 and 16 do not have a GCF of 1. For example, 16 is divisible by 4 and 16, but it is not disable by 64.

However, if a number is divisible by 64, it is necessarily also divisible by all factors of 64, i.e. 16 and 4 (as well as 2, 8, and 32)

How to find if a number is divisible by a large composite integer, e.g. 64

Break that large integer into its smaller components, e.g. 64 = 4 * 4 * 4.

n = 64 * S --- S = n/64

S = ((n/4)/4)/4

Simply divide the n by 4, then divide the result by 4, and then divide that result by four. If you get a non-integer number anywhere in these steps, stop – the number is not divisible by 64. Otherwise it is.

**** The End ****