Divisibility Rules

Easily test if one number can be evenly divided by another

Divisible By

"Divisible By" means "If you divide one number by another, is the result a whole number?"

Example, 14 is divisible by 7, because 14÷7 = 2 **exactly**

But 15 is **not** divisible by 7, because 15÷7 = **2** $^{1}/_{7}$ (i.e., the result is **not** a whole number)

The Divisibility Rules

These rules let you test if one number can be evenly divided by another, without having to do too much calculation!

A number is divisible by:	**If:**	**Example:**
2	The last digit is even (0,2,4,6,8)	12**8** is 12**9** is not
3	The sum of the digits is divisible by 3	381 (3+8+1=12, and 12÷3 = 4) **Yes** 217 (2+1+7=10, and 10÷3 = 3 $^{1}/_{3}$) **No**
4	The last 2 digits are divisible by 4	13**12** is (12÷4=3) 70**19** is not
5	The last digit is 0 or 5	17**5** is 80**9** is not
6	The number is divisible by both 2 *and* 3	114 (it is even, and 1+1+4=6 and 6÷3 = 2) **Yes** 308 (it is even, but 3+0+8=11 and 11÷3 = 3 $^{2}/_{3}$) **No**
7	If you double the last digit and subtract it from the rest of the number and the answer is: • **0**, or • **divisible by 7**	672 (Double 2 is 4, 67-4=63, and 63÷7=9) **Yes** 905 (Double 5 is 10, 90-10=80, and 80÷7=11 $^{3}/_{7}$) **No**

	(Note: you can apply this rule to that answer again if you want)	
8	The last three digits are divisible by 8	109**816** (816÷8=102) **Yes** 216**302** (302÷8=37 $^{3}/_{4}$) **No**
9	The sum of the digits is divisible by 9 (Note: you can apply this rule to that answer again if you want)	1629 (1+6+2+9=18, and again, 1+8=9) **Yes** 2013 (2+0+1+3=6) **No**
10	The number ends in 0	**220** is **221** is not
11	If you sum every second digit and then subtract all other digits and the answer is: • **0**, or • **divisible by 11**	1**364** ((3+4) - (1+6) = **0**) **Yes** 3**729** ((7+9) - (3+2) = **11**) **Yes** 2**5**176 ((5+7) - (2+1+6) = **3**) **No**
12	The number is divisible by both 3 *and* 4	648 (6+4+8=18 and 18÷3=6, also 48÷4=12) **Yes** 916 (9+1+6=16, 16÷3= 5 $^{1}/_{3}$) **No**