Divisibility Rules

These rules make it easier to find factors of numbers. The more you know, the easier it will be to find prime factors and reduce fractions.

Divisible by:	If:	Examples:
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** (Note: you can apply this rule to that answer again if you want)	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**
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	22**0** is 22**1** is not
11	Add and subtract digits in an alternating pattern (add first, subtract second, add third, etc). Then the answer must be: • **0**, or • **divisible by 11**	**1**364 (1−3+6−4 = **0**) **Yes** **9**13 (9−1+3 = **11**) **Yes** **3**729 (3−7+2−9 = **−11**) **Yes** **9**87 (9−8+7 = **8**) No
12	The number is divisible by both 3 *and* 4	648 (*By 3?* 6+4+8=18 and 18÷3=6 Yes. *By 4?* 48÷4=12 Yes) **Yes** 524 (*By 3?* 5+2+4=11, 11÷3= 3 ²/₃ No. Don't need to check by 4.) **No**