



RULES OF DIVISIBILITY



The ability to determine whether a number is divisible by another number quickly has many applications. Some of these applications include reducing fractions, finding common denominators, and factoring polynomials. Here are a few easy rules to follow.

For a number to be divisible by:

2	The number must be an even number. (i.e. ending in 2, 4, 6, 8, or 0)
3	The sum of the digits of the number must be divisible by 3. (i.e. $273 \rightarrow 2 + 7 + 3 = 12$. Since 12 is divisible by 3, 273 must also be divisible by 3)
4	The number must be even and the last two digits of the number must be divisible by 4.
5	The number must end in a 5 or a 0.
6	The number must be even and the sum of its digits must be divisible by 3.
7	Take the last digit and double it. Then subtract this value from the remaining digits of the number. If the result is divisible by 7, then the original number is divisible by 7. (i.e. $266 \rightarrow$ last digit = 6. doubled = 12. Subtract from remaining digits $\rightarrow 26 - 12 = 14$. Since 14 is divisible by 7, 266 must also be divisible by 7)
8	If the first digit is even and the last two digits are divisible by 8, then the number is divisible by 8. If the first digit is odd, take the last two digits and subtract 4. If the remaining value is divisible by 8, then the original number is divisible by 8.
9	The sum of the digits must be divisible by 9. (i.e. $468 \rightarrow 4 + 6 + 8 = 18$. Since 18 is divisible by 9, 468 must also be divisible by 9)
10	The number must end in 0.
12	The number must be divisible by both 3 and 4.

