

## Divisibility Rules

	Rule	Example
<b>Divisibility by 0</b>	No numbers are divisible by 0.	None
<b>Divisibility by 1</b>	All numbers are divisible by 1.	All Numbers
<b>Divisibility by 2</b>	Even numbers are divisible by 2.	109850 is divisible by 2 because it is an even number.
<b>Divisibility by 3</b>	Add the digits of a number together. If the sum is divisible by 3, then the original number is divisible by 3.	The number 792 is divisible by 3 because $7 + 9 + 2 = 18$ , and 18 is divisible by 3.
<b>Divisibility by 4</b>	If the last two digits of a number are divisible by 4, then the original number is divisible by 4.	The number 16248 is divisible by 4 because the last two digits, 48, are divisible by 4.
<b>Divisibility by 5</b>	If a number ends in 0 or 5, then the number is divisible by 5.	The number 563,021,689,540 is divisible by 5 because it ends in 0.
<b>Divisibility by 6</b>	If a number is divisible by 2 and 3, then it is also divisible by 6.	The number 6874 is <b>not</b> divisible by 6, even though 6874 is even, indicating divisibility by 2, but $6 + 8 + 7 + 4 = 25$ , and 25 is not divisible by 3.
<b>Divisibility by 7</b>	Double the last digit and then subtract it from the number formed by the remaining digits. If the result is divisible by 7 or equal to 0, then the original number is divisible by 7. This can be repeated if necessary.	The number 3416 is divisible by 7 because: Double the last digit      Subtract from remaining digits $6 \times 2 = 12$ $341 - 12 = 329$ Repeat if necessary with the result. In this case 329 $9 \times 2 = 18$ $32 - 18 = 14$ , and 14 is divisible by 7.

	Rule	Example
<b>Divisibility by 8</b>	If the last three digits of a number are divisible by 8, then the original number is divisible by 8.	The number 5128 is divisible by 8 because $128 \div 8 = 16$ , and 16 is divisible by 8.
<b>Divisibility by 9</b>	Add the digits of a number together. If the sum is divisible by 9, then the original number is divisible by 9.	The number 65762 is <b>not</b> divisible by 9 because $6 + 5 + 7 + 6 + 2 = 26$ , and 26 is not divisible by 9.
<b>Divisibility by 10</b>	If the number ends in 0, then it is divisible by 10.	The number 29581940 is divisible by 10 because the last digit is a 0.
<b>Divisibility by 11</b>	Alternately add and subtract the digits of the number. If the result is divisible by 11 or equal to 0 then the original number is divisible by 11.	The number 3564 is divisible by 11 because $3 - 5 + 6 - 4 = 0$ .
<b>Divisibility by 12</b>	If a number is divisible by 3 and 4, then it is also divisible by 12.	The number 409536 is divisible by 12 because $4 + 0 + 9 + 5 + 3 + 6 = 27$ which shows divisibility by 3, and the last two digits, 36, indicate divisibility 4.

Source: Weisstein, Eric W. "Divisibility Tests." From *MathWorld*--A Wolfram Web Resource.  
<http://mathworld.wolfram.com/DivisibilityTests.html>