

Divisibility Tests

Test for Divisibility by 2

A number is evenly divisible by 2 if and only if the last digit is an even number (0, 2, 4, 6, or 8).

Example: 1,235,358 is evenly divisible by 2 because the last digit is 8.

Example: 6,345 is not evenly divisible by 2 because the last digit is 5.

Test for Divisibility by 3

A number is evenly divisible by 3 if and only if the sum of the digits is evenly divisible by 3. *This is repeatable.*

Example: 68,345,865 is evenly divisible by 3 because $6 + 8 + 3 + 4 + 5 + 8 + 6 + 5 = 45$
and then $4 + 5 = 9$ which is evenly divisible by 3.

Example: 151 is not evenly divisible by 3 because $1 + 5 + 1 = 7$ which is not evenly divisible by 3.

Test for Divisibility by 4

A number is evenly divisible by 4 if and only if the number formed by the last two digits is evenly divisible by 4.

Example: 23,324 is evenly divisible by 4 because the last two digits form 24 which is evenly divisible by 4.

Example: 711 is not evenly divisible by 4 because the last two digits form 11 which is not evenly divisible by 4.

Test for Divisibility by 5

A number is evenly divisible by 5 if and only if the last digit is 0 or 5.

Example: 213,865 is evenly divisible by 5 because the last digit is 5.

Example: 314 is not evenly divisible by 5 because the last digit is 4.

Test for Divisibility by 6

A number is evenly divisible by 6 if and only if it is divisible by both 2 and 3.

Example: 3,024 is evenly divisible by 6 because the last digit is 4 and $3 + 0 + 2 + 4 = 9$.

Example: 206 is not evenly divisible by 6 because $2 + 0 + 6 = 8$ which is not evenly divisible by 3.

Test for Divisibility by 7

The tests for divisibility by 7 are typically too complicated to be of much use.

Test for Divisibility by 8

A number is evenly divisible by 8 if and only if the number formed by the last three digits is evenly divisible by 8.

Example: 2,947,128 is evenly divisible by 8 because the last three digits form 128 which is evenly divisible by 8.

Example: 21,033 is not evenly divisible by 8 because the last three digits form 33
which is not evenly divisible by 8.

Test for Divisibility by 9

A number is evenly divisible by 9 if and only if the sum of the digits is evenly divisible by 9. *This is repeatable.*

Example: 2,124, is evenly divisible by 9 because $2 + 1 + 2 + 4 = 9$ which is evenly divisible by 9.

Example: 8,512 is not evenly divisible by 9 because $8 + 5 + 1 + 2 = 16$
and then $1 + 6 = 7$ which is not evenly divisible by 9.

Test for Divisibility by 10

A number is evenly divisible by 10 if and only if the last digit is 0.

Example: 8,356,540 is evenly divisible by 10 because the last digit is 0.

Example: 7,275 is not evenly divisible by 10 because the last digit is 5.