

Divisibility Rules

A divisibility rule is a test that lets you know if the number you want to divide can be divided by a particular number. If the number you want to divide does not pass the test it can't be divided by that number.

A number is **divisible by 2** if it is even.

Even numbers end with 0, 2, 4, 6, or 8.

A number is **divisible by 3** if the sum of its digits is divisible by 3.

21 is divisible by 3 because the sum of its digits ($2+1$) is 3 and 3 is divisible by 3. Another number that is divisible by 3 is 36 because $(3+6)$ is 9 and 9 is divisible by 3.

A number is **divisible by 4** if the number formed by its last two digits is divisible by 4.

832 and 544 are both divisible by 4.

A number is **divisible by 5** if it ends in a 5 or a 0.

25 and 30 are both divisible by 5.

If a number divides by 2 and it divides by 3 then it divides by $2 \cdot 3$ (it is **divisible by 6**).

12 and 30 are both divisible by 6 because both of them can be divided by 2 and 3.

A number is **divisible by 9** if the sum of its digits is divisible by 9.

81 is divisible by 9 because $8+1 = 9$ and 9 is divisible by 9.

A number is **divisible by 10** if it ends in a 0.

100 and 1,000 are divisible by 10.

Test for divisibility

1.	4	15.	22	29.	56
2.	16	16.	44	30.	20
3.	100	17.	21	31.	30
4.	25	18.	26	32.	75
5.	48	19.	42	33.	6
6.	63	20.	18	34.	49
7.	95	21.	35	35.	98
8.	81	22.	40	36.	121
9.	33	23.	64	37.	28
10.	51	24.	32	38.	23
11.	36	25.	55	39.	31
12.	45	26.	8	40.	93
13.	12	27.	15		
14.	14	28.	10		

Test these numbers for divisibility by 2, 3, 4, 5, 6, 9, and 10.

Test for divisibility

Challenge

Test each number to see if it divides by 2, 3, 4, 5, 6, 9, and 10.

- A. 576
- B. 1998
- C. 6345
- D. 5436
- E. 1440

F. Find a number that is divisible by:

- i. 2, and 3
- ii. 2,3, and 4
- iii. 2,3,4,5
- iv. 2,3,4,5,9,10

Challenge

Test each number to see if it divides by 2, 3, 4, 5, 6, 9, and 10.

- A. 33624
- B. 18120
- C. 5463
- D. 24542424
- E. 24424245

F. Find a number that is divisible by:

- i. 2,5,9
- ii. 2,3,5
- iii. 2,3,4,5 that does not end in a 5
- iv. 2,3,4,5,6,9,10

Challenge

Test each number to see if it divides by 2, 3, 4, 5, 6, 9, and 10.

- A. 3331112220
- B. 8991
- C. 345645
- D. 3654324
- E. 4104

F. Find a number that is divisible by:

- i. 2,5,6
- ii. 6,4,9
- iii. 2,3,4,5 that does not end in a 5
- iv. 2,3,4,5,6,9,10