

Divisibility Rules

Use these rules to decide if one number can be evenly divided by another (with no remainder).

“Divisible by” means the same as “evenly divided by.”

A number is divisible by:	if...	For example:
2	...it is even (ends in 0, 2, 4, 6, or 8).	<ul style="list-style-type: none"> • 12 is divisible by 2. $12 \div 2 = 6$ • 13 is not divisible by 2.
3	...the sum of the digits is divisible by 3. This rule can be used a again, if needed.	<ul style="list-style-type: none"> • 54 is divisible by 3. $5 + 4 = 9$ (9 is divisible by 3) • 82 is not divisible by 3. $8 + 2 = 10$ (10 is not divisible by 3. $1 + 0 = 1$)
4	...the last two digits are divisible by 4.	<ul style="list-style-type: none"> • 116 is divisible by 4 because 16 is divisible by 4. • 225 is not divisible by 4 because 25 is not divisible by 4.
	OR ...the number can be halved twice.	<ul style="list-style-type: none"> • 32 is divisible by 4. Half of 32 is 16 and half of 16 is 8. • 46 is not divisible by 4. Half of 46 is 23, but 23 cannot be evenly divided in half.
5	...it ends in 5 or 0.	<ul style="list-style-type: none"> • 45 is divisible by 5. • 52 is not divisible by 5.
6	...it is divisible by 2 <u>and</u> 3. (It passes the Divisibility Rule for 2 and 3.)	<ul style="list-style-type: none"> • 72 is divisible by 6 because... ...it is divisible by 2 because it is even and ...it is divisible by 3 because $7 + 2 = 9$. • 64 is not divisible by 6 because... ...it is divisible by 2 because it is even but ...it is not divisible by 3 because $6 + 4 + = 10$ (10 is not divisible by 3, $1 + 0 = 1$)
8	...it is divisible by 2 <u>and</u> 4. (It passes the Divisibility Rule for 2 and 4.)	<ul style="list-style-type: none"> • 112 is divisible by 8 because... ...it is divisible by 2 because it is even and ...it is divisible by 4 because 12 is divisible by 4.
	OR ...the number can be halved three times.	<ul style="list-style-type: none"> • 32 is divisible by 8. Half of 32 is 16, half of 16 is 8, and half of 8 is 4. • 44 is not divisible by 8. Half of 44 is 22, half of 22 is 11, but 11 cannot be evenly divided in half.
9	...the sum of the digits is divisible by 9. This rule can be used a again, if needed.	<ul style="list-style-type: none"> • 81 is divisible by 9. $8 + 1 = 9$ (9 is divisible by 9) • 73 is not divisible by 9. $7 + 3 = 10$ (10 is not divisible by 9. $1 + 0 = 1$)
10	...it ends in 0.	<ul style="list-style-type: none"> • 40 is divisible by 10. • 65 is not divisible by 10.

There is no simple Divisibility Rule for 7.