

Divisibility rules and tests

MODULE 2 · OPERATIONS AND COMPUTATIONAL FLUENCY NUMBER

Divisibility rules test if one number divides another exactly, without dividing: by 2 if it's even, by 5 if it ends in 0 or 5, by 10 if it ends in 0, and by 3 if the **digits add to a multiple of 3**.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

→ 126: digits $1 + 2 + 6 = 9$, a multiple of 3 → divisible by 3.

→ 340 ends in 0 → divisible by 2, 5 and 10.

TEST 270 FOR DIVISIBILITY BY 2, 3, 5 AND 10

- It ends in 0, so it is divisible by 2, 5 and 10.
- Its digits add to $2 + 7 + 0 = 9$, a multiple of 3 → divisible by 3.
- So 270 is divisible by 2, 3, 5 and 10.

HOW TO ANSWER TODAY

- Order of operations.** Brackets first, then $\times$ and $\div$, then $+$ and $-$. Inside each group, work LEFT to RIGHT.

$$3 + 2 \times 5 \rightarrow 3 + 10 = 13 \cdot (4 + 2) \times 3 \rightarrow 6 \times 3 = 18$$

WARM-UP

- a. $96 - 28 =$ b. $60 - 39 =$ c. $60 - 54 =$ d. $46 - 38 =$

PRACTICE

- Mr Ó Briain wants to arrange 38 chairs in the school hall into equal rows for the 5th class assembly. He needs to know every possible row size that divides 38 exactly. List every factor of 38 in order from smallest to largest.
- Aoife has 55 autumn leaves saved in her art folder. She gathers 7 more bunches in the school yard, with 9 leaves in each bunch, but 2 leaves get torn and thrown away. How many usable leaves does she have for the art lesson?

CHALLENGE

- Cian is building a model bridge for STEM week and has 38 lolly sticks to arrange in equal rows along the deck. He wants to know if 38 is a prime number so he can decide how to split the sticks into rows. Is 38 a prime number? Answer yes or no, and give a reason.
- Mr Ó Briain has 48 weather stickers to arrange in equal rows on the 5th class weather chart. He wants to know every row size that would use all 48 stickers with none left over. List every factor of 48 in order from smallest to largest.