

The link between $\times$ and $\div$ (multiplication and division)

MODULE 10 · ALGEBRA — PATTERNS, RULES AND NUMBER SENTENCES

ALGEBRA

HOW TO ANSWER TODAY

- **Property names.** Order swaps ($a + b = b + a$) $\rightarrow$ commutative. Brackets move ($(a+b)+c = a+(b+c)$) $\rightarrow$ associative. One spreads over two ($a(b+c) = ab+ac$) $\rightarrow$ distributive.
 $5 + 3 = 3 + 5 \rightarrow$ commutative $\cdot 2 \times (4 + 5) = 2 \times 4 + 2 \times 5 \rightarrow$ distributive
- **Solve for x.** Do the OPPOSITE operation to both sides. $+$ becomes $-$; $\times$ becomes $\div$.
 $x + 7 = 15 \rightarrow x = 15 - 7 = 8 \cdot 3x = 21 \rightarrow x = 21 \div 3 = 7$

TRY IT ON THE LINE

Use the hundred square to spot number patterns and multiples.

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

1. Colour every multiple of the number in the lesson.
2. Describe the pattern the coloured squares make.
3. Count how many multiples there are up to 100.

PRACTICE

- 1 Mr Ó Briain pins a maths chart on the 4th class noticeboard showing $(9 \times 9) \times 4 = 9 \times (9 \times 4)$. Which property of operations does the equation show: commutative, associative, or distributive?

Which property of operations does this equation show: $(9 \times 9) \times 4 = 9 \times (9 \times 4)$? (Choose: commutative, associative, or distributive.)

- 2 Cian and his sister Aoife are checking their maths homework at the kitchen table. Aoife says that $(7 \times 9) \times 2 = 7 \times (9 \times 2)$ without doing the sum. Which property of operations is she using: commutative, associative, or distributive?

Which property of operations does this equation show: $(7 \times 9) \times 2 = 7 \times (9 \times 2)$? (Choose: commutative, associative, or distributive.)

CHALLENGE

1



Find x so the scale balances.

On the school tour to the Cliffs of Moher, Aoife spends **10 euro** from her wallet on a souvenir. She now has **9 euro** left. Solve for x , where $x - 10 = 9$, to find how much money she had at the start.

- 2 Mr Ó Briain writes an equation on the board while 3rd class decorate the room for World Book Day: $9 \times (9 + 14) = 9 \times 9 + 9 \times 14$. Which property of operations does this equation show: commutative, associative, or distributive?