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TOPIC 5: ALGEBRAIC EXPRESSIONS

Addition, Subtraction, Multiplication, Division

We use **letters** (a, b, c, x, y, z, etc) to represent numbers and quantities.
Eg. We can represent 5 erasers as 5x, where x represents 1 eraser

$$a + b = (a + b)$$

$$a - b = (a - b)$$

$$a \times b = ab$$

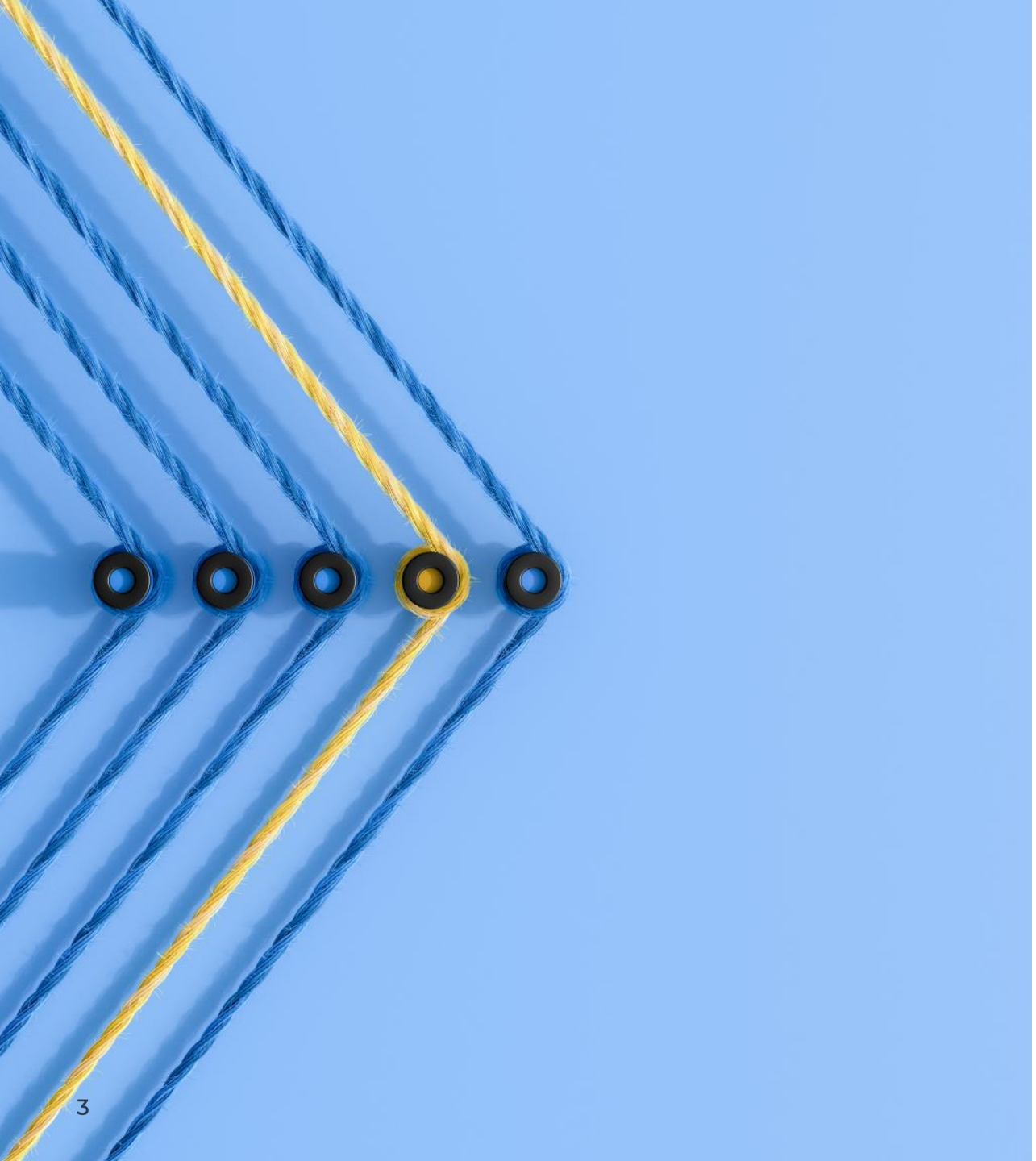
$$a \div b = \frac{a}{b}$$

$$a \times a = a^2$$

Evaluating Algebraic Expressions
Eg. Evaluate the expression $2x^2 + 10x + 5$, *where* $x = 2$

- Step 1: substitute the letter x as the value 2 and rewrite the equation
    - $2(2)^2 + 10(2) + 5 = 33$ (answer)

Number Patterns
The **general term** refers to the *n*th term, where *n* is known as a variable.



Addition & Subtraction of linear expressions

Eg. Add (2x + 3y + 5) to (5x – 2y – 3)

- Step 1: Write out both expressions together
  - *(2x + 3y + 5) + (5x – 2y – 3)*
- Step 2: Remove the brackets, keeping in mind any changes in signs
  - *2x + 3y + 5 + 5x – 2y – 3*
- Step 3: Group together the common letters
  - *2x + 5x +3y – 2y + 5 – 3*
- Step 4: Work it out
  - *7x + 1y + 2 (answer)*

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