

Scientific notation

Numbers in scientific notation like 6.022e23.

```
^-?\d+(\.\d+)?[eE][+-]?\d+$
```

Token-by-token breakdown

Token	Meaning
^	start of string (or line in multiline mode)
-?	optional (zero or one): the literal "-"
\d+	one or more: digit (0–9)
(	start of a capturing group
\.	literal "."
\d+	one or more: digit (0–9)
)?	end of group, optional (zero or one)
[eE]	any of: "e", "E"
[+-]?	optional (zero or one): any of: "+", "-"
\d+	one or more: digit (0–9)
\$	end of string (or line in multiline mode)

Quick usage in 7 languages

JavaScript	<pre>const re = /^-?\d+(\.\d+)?[eE][+-]?\d+\$/; re.test(value);</pre>
Python	<pre>import re re.match(r"^-?\d+(\.\d+)?[eE][+-]?\d+\$", value)</pre>
Java	<pre>Pattern.compile("^-?\d+(\.\d+)?[eE][+-]?\d+\$").matcher(value).matches();</pre>
C# / .NET	<pre>Regex.IsMatch(value, @"^-?\d+(\.\d+)?[eE][+-]?\d+\$");</pre>
Go	<pre>regexp.MustCompile(`^-?\d+(\.\d+)?[eE][+-]?\d+\$`).MatchString(value)</pre>
Ruby	<pre>/^-?\d+(\.\d+)?[eE][+-]?\d+\$/ .match?(value)</pre>
PHP	<pre>preg_match('~^-?\d+(\.\d+)?[eE][+-]?\d+\$~', \$value);</pre>

Common pitfalls

- **Anchored to the whole string.** This pattern uses ^ and \$, so it requires the entire input to match. To find it inside a longer text, drop the anchors and use the global (g) flag.
- **Escape it correctly per language.** In Java and JavaScript strings each backslash must be doubled (\d); in Python, Go, and C# use raw/verbatim strings so the backslashes survive.
- **Validate beyond format.** Matching the format doesn't guarantee the value is real. Confirm the scientific notation against a source of truth (database, API, or checksum) where it matters.