

Regular Languages and Finite-State Machines

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Regular Expressions and chatGPT

Give a regular expression that will generate a sequence of natural numbers that are multiple of 3.

That is ...

0, 3, 6, 9, ...

Solution:

`(3|6|9|\d*(1(01*?0)*?1|0))$`

Ask chatGPT to do the same.



A regular expression that matches natural numbers that are multiples of 3 is:



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```
^(3|6|9|\d*[02468][13579])$
```

This regular expression matches any number that starts with 3, 6, or 9, or any number that ends with an even digit (0, 2, 4, 6, or 8) and has a sum of digits that is divisible by 3.

Here is a breakdown of the regular expression:

- `^` matches the start of the string`
- `^(3|6|9|\d*[02468][13579])` matches any of the following:`
 - ``3`, `6`, or `9``
 - ``\d*` matches zero or more digits`
 - ``[02468]` matches any even digit`
 - ``[13579]` matches any odd digit`
- ``$` matches the end of the string`

Examples of numbers that match this regular expression are:

- 0
- 3
- 6
- 9
- 12
- 15
- 18
- 21
- 24
- 27
- 30
- 33
- 36
- 39
- ... and so on