MATHEMATICS · GRADES 4-6

Divisibility rules

Difficulty level: Intermediate

Mathematics: Grades 4-6

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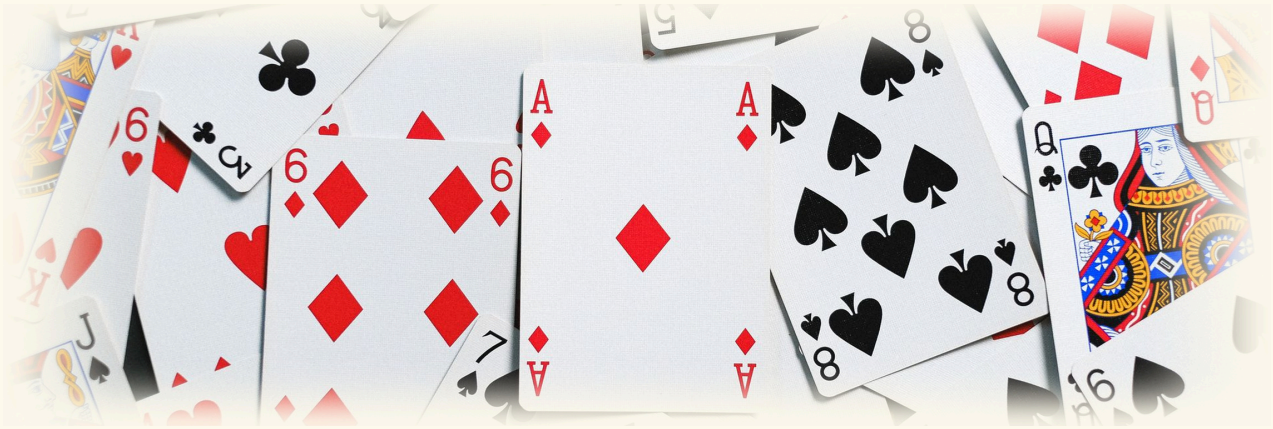
Overview of the concept

This is how you quickly check whether a number splits evenly. You can tell at a glance whether a pack of cards deals out fairly or a bill splits evenly between friends, without doing the full division. The rules save you from long division when all you need is a yes or no. They are also how you spot factors fast when you are simplifying a fraction.



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Rule

Divisibility rules: a number is divisible by 2 if its last digit is even. It is divisible by 3 if the sum of its digits is a multiple of 3. It is divisible by 4 if its last two digits form a number divisible by 4.

It is divisible by 5 if it ends in 0 or 5. It is divisible by 6 if it is divisible by both 2 and 3. It is divisible by 8 if its last three digits form a number divisible by 8. It is divisible by 9 if the sum of its digits is a multiple of 9. It is divisible by 10 if it ends in 0. Check the rule for the divisor, not the whole division.

Worked examples

EXAMPLE 1

Q Is 234 divisible by 3?

SOLUTION

This is a divisibility by 3 question, so the rule is: add the digits, and check whether that sum is divisible by 3.

$2 + 3 + 4 = 9$, and $9 \div 3 = 3$.

So yes, 234 is divisible by 3.

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EXAMPLE 2

Q Is 1,124 divisible by 4?

SOLUTION

This is a divisibility by 4 question, so the rule is: look at the last two digits only.

The last two digits make 24, and 24 ÷ 4 = 6.

So yes, 1,124 is divisible by 4.

Practice questions

1 Is 342 divisible by 2? Answer yes or no.

- A Yes
- B No

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2 Is 275 divisible by 5? Answer yes or no.

- A Yes
- B No

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3 Is 1,230 divisible by 10? Answer yes or no.

A Yes

B No

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4 Is 4,563 divisible by 3? Answer yes or no.

A Yes

B No

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5 Is 4,563 divisible by 9? Answer yes or no.

A Yes

B No

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6 Is 5,312 divisible by 4? Answer yes or no.

- A Yes
- B No

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7 Is 5,312 divisible by 8? Answer yes or no.

- A Yes
- B No

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8 Is 918 divisible by 6? Answer yes or no.

- A Yes
- B No

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9 The number 88,4_6 is divisible by 3. What is the smallest digit that can go in the blank?

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10 Which of these numbers divide 1,250 exactly?

2

3

5

10

A 2, 3, and 10

B 2 and 5

C 2, 5, and 10

D 5 and 10

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ANSWER KEY

1. Yes

2. Yes

3. Yes

4. Yes

5. Yes

6. Yes

7. Yes

8. Yes

9. 1

10. 2, 5, and 10

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