Pintarian Mathletes

IMONST Preparation Classes: Divisibility Rules

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Contents

1 Discussed Problems

1. (IMONST 1 2023) The number -6 is divisible by 3.
2. (IMONST 1 2023) 0 is divisible by -3.
3. (IMONST 1 2022) Determine the number $a \times b$ if the number $\overline{a2022b}$ is divisible by 72.
4. (IMONST 1 2021) What is the smallest positive multiple of 24 that can be written using digits 4 and 5 only?
5. (IMONST 1 2020) What is the smallest positive multiple of 225 that can be written using digits 0 and 1 only?

2 Extra Problems

1. (CJR) If the 3-digit number $\overline{2a7}$ is divisible by 11, find the value of a.
2. (CJR) Given that the 5-digit number $\overline{2a5a6}$ is divisible by 36, find the digit a.
3. (CJR) The 5-digit number $\overline{a789b}$ is a multiple of 12. Find the number of possible solutions for (a, b).
4. (SMO) What is the smallest 5-digit integer of the form $\overline{5x20y}$ that is divisible by 33?
5. (AMC 12) The six-digit number $\overline{20210A}$ is prime for only one digit A. What is A?

3 For Your Reference

- List of Divisibility Rules
- Lecture Video by Chen Hongming
- My Recommendations for Other Contest Math Resources

4 Contact Me

Feel free to shoot me a text through Telegram (@leia_mayssa)!