Math 5 - Act. 03: Remainder Riddles

Summary

This activity will introduce the rules of divisibility and provide practice using them.

Materials

- Remainder Riddle poster
- Remainder Riddles 1-25 handout
- Calculators (optional)

Background for Teachers

Students will have completed the Remainder of One exploration activity. You can use this as an opportunity for introducing the rules of divisibility or to practice using them.
Rules of divisibility:
2: Ends in an even number.
3: Add all of the digits together, if the sum is a multiple of three, it is divisible by three (54; 5+4 = 9, 9 is a multiple of 3, 54 ÷ 3 = 18).
5: Ends in zero or five.
9: Add all of the digits together, if the sum is a multiple of nine, it is divisible by nine (126; 1+2+6 = 9, 126÷9 = 14).
10: Ends in zero.

Intended Learning Outcomes

1. Demonstrate a positive learning attitude toward mathematics.
2. Become mathematical problem solvers.

Instructional Procedures

Invitation to Learn
Display the poster and pose the problem: “Today we are going to try to find a mystery number knowing only the remainder it leaves when divided by different numbers.”
Instructional Procedures

- Review the rules of divisibility.
- Look at the poster and ask students where they think we should begin. Does the first clue help us at all? (No, any number divided by one will have no remainder because one is a factor of all numbers.) How about the second clue? (Yes, because when it is divided by two, it leaves no remainder so the answer must be even.)
- Continue working through the clues until you solve the riddle.
- Discuss with the class how they can create their own riddles by doing one together as a class. Working backwards makes this much easier. Begin by picking a number, then continue dividing it by the different numbers and recording the remainders. When finished, double check by working through all of the clues to make sure the number is the same.
- Students are now going to create their own riddles. Hand out the Remainder Riddle 1-25 worksheet. You can have students work by themselves, with a partner, or in small groups. If you find a need, you may let your students use calculators or let them double-check their own calculations with a calculator.
- After they create their riddles, have students share them with a neighbor and see if they can solve them.

Extensions

Possible Extensions/Adaptations

Use calculators for students who do not have a knowledge of the facts. Create a class book of remainder riddles to checkout. Have a different student share his or her riddle each morning for ongoing practice of division and rules of divisibility.

Homework & Family Connection

Have students create another riddle, picking a number between 1-50 using the Remainder Riddles 1-50 handout.

Assessment Plan

Collect the papers that your students create. Assess the creator to make sure the problem works. Assess the solver to see if they were able to use the rules of divisibility to solve the riddle.

Authors

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