

MTH 4436 - Test #3

FALL 2021

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Name _____

Theorems, Definitions, etc.

1. Define *congruent modulo n* .
2. State a theorem that gives an alternative definition for *congruent modulo n* .
3. State a theorem or corollary dealing with canceling and congruences. (e.g., a “cancellation law” or something similar.)
4. State a theorem or corollary dealing with congruences and polynomials.
5. State a theorem or corollary dealing with testing large numbers for divisibility by a certain natural number.
6. State two properties/laws/rules having to do with working with congruences algebraically.

Exercises

7. $5x \equiv 2 \pmod{26}$

8. Find the remainder when 2^{65} is divided by 7.

9. Prove that the integer $53^{103} + 103^{53}$ is divisible by 39.

10. Without performing divisions, determine whether the number 2475693 is divisible by 9 or 11