

Quiz/Homework 11

MGF 3301 Intro. to Adv. Math

Student's Name: _____

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This is a 30 minute quiz. Discuss the problems in your group, and then write down your own answer.

1. Find integers a and b so that

$$55a + 72b = 1.$$

What is the multiplicative inverse of $[55]$ modulo 72 ?

2. Find all the powers of $[2]$ modulo 9 .

3. (a) Prove that if a divides bc and $\gcd(a, b) = 1$, then a divides c .
(Hint: Use the fact that $ra + sb = 1$ for some $r, s, \in \mathbb{Z}$.)

- (b) Use this to show that if $\gcd(a, b) = 1$, then $\text{lcm}(a, b) = ab$.