CMSC 441: Homework #8 Solutions

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Exercise 1

$$GCD(99, 78) = 3$$

$$GCD(899, 493) = 29$$

Exercise 2

$$LCM(99, 78) = 2574$$

$$LCM(899, 493) = 15283$$

Exercise 3

Multiplicative inverse of 7 mod 1023 is 877.

Exercise 4

$$57 = 111001_b$$

$$(73)^{57} \bmod 101 = 61$$

73^1 mod 101	73	1
73^2 mod 101	77	0
73^4 mod 101	71	0
73^8 mod 101	92	1
73^16 mod 101	81	1
73^32 mod 101	97	1

$73 * 92$ mod 101	50
$93 * 81$ mod 101	10
$59 * 97$ mod 101	61