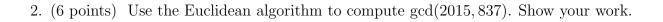
Name:												
NetID:		Lecture:					${f A}$	В				
Discussion:	Thursday	Friday	9	10	11	12	1	2	3	4	5	6
	Is the following owing that it is n		Info	rmally	explair	n why	it is,	or gi	ve a	concr	ete c	ounter-
	For all positive $c = 1$.	integers a, b	o, and	c, if go	$\operatorname{ed}(a,ba)$	= 1,	then	$\gcd(a$	(b, b) =	= 1 aı	nd	
2. (6 points)	Use the Euclidea:	n algorithm	to co	mpute	$\gcd(15$	568, 54	6). Sl	now yo	our v	vork.		
3. (4 points) (Check the (single)	box that b	est ch	ıaracteı	rizes ea	ıch ite	m.					
v -	sitive integers p a $= pq$, then p and q		ely pri	me.	true		:	false				
Zero is a fa	ctor of 7.	true [fa	lse							

CS 173, Sp	oring 19	Exa	aml	let 2	, wh	nite						2)
Name:													
NetID:			=	$L\epsilon$	ectur	e:	A 12 1						
Discussion:	Thursday	Friday	9	10	11	12	1	2	3	4	5	6	
example sho	Is the following owing that it is not all positive in	ot.							ve a	conci	rete c	counter-	-



3. (4 points) Check the (single) box that best characterizes each item.

gcd(0,0)

 $\quad \text{undefined} \quad$

 $25 \equiv 4 \pmod{7}$

 ${\rm true}$

false

Name:												
NetID:					ectur	e: .	\mathbf{A}	В				
Discussion:	Thursday	Friday	9	10	11	12	1	2	3	4	5	6
	Is the following owing that it is n		Info	rmally	explaiı	n why	it is,	or gi	ve a	conci	rete c	ounte
For an	y positive integer	$k, (k-1)^2$	≡ 1	\pmod{k}	;).							
2. (6 points)	Use the Euclidea	n algorithm	to co	mpute	$\gcd(11$	183, 35	1). Sł	now y	our v	vork.		
3. (4 points) (Check the (single)) box that be	est ch	naracte	rizes ea	ach ite	·m.					
	are positive and r) = gcd (b, a)	r = remain	$\operatorname{der}(a$	(a,b),	true		<u> </u>	false				
7 -7		true		fals	e							

 \mathbf{A}

 \mathbf{B}

Name:_____

NetID:______ Lecture:

Discussion: Thursday Friday 9 10 11 12 1 2 3 4 5 6

1. (5 points) Is the following claim true? Informally explain why it is, or give a concrete counter-example showing that it is not.

Claim: For all positive integers a, b, and c, if gcd(a,b)=1 and gcd(b,c)=1, then gcd(a,c)=1.

2. (6 points) Write pseudocode (iterative or recursive) for a function gcd(a,b) that implements the Euclidean algorithm. Assume both inputs are positive.

3. (4 points) Check the (single) box that best characterizes each item.

$$\gcd(p,q) = \frac{pq}{\operatorname{lcm}(p,q)}$$
(p and q positive integers)

always

sometimes

never

 $-7 \equiv 13 \pmod{6}$

true

false

 $29 \equiv 2 \pmod{9}$

Name:												
NetID:				Lecture:			\mathbf{A}	В				
Discussion:	Thursday	sday Friday	9	10	11	12	1	2	3	4	5	6
	Is the following owing that it is n		Info	rmally	explaiı	n why	it is,	or gi	ve a	conci	rete c	ounter-
For an	ny positive integer	cs a, b, and c	e, if a	bc, th	nen $a \mid$	b or a	$\mid c$					
2. (6 points)	Use the Euclidean	n algorithm	to co	mpute	$\gcd(17$	702, 12	21). S	Show ;	your	work		
3. (4 points) (Check the (single)	box that be	est ch	aractei	rizes ea	ach ite	m.					
	are positive integer	ers										
	$ \text{nainder}(a, b), \\ r) = \gcd(r, a) $			true		i	false					

false

true

 $2 \mid -4$

Name:	-				-							
NetID:				${ m L}\epsilon$	ecture	e:	A	В				
Discussion:	Thursday	Friday	9	10	11	12	1	2	3	4	5	6
, - ,	Is the following owing that it is n		Infor	rmally	explair	n why	it is,	or gi	ve a	concr	ete c	ounter
	: For all positive bc) = np .	e integers a ,	b, ai	c, is	$f \gcd(a)$	(a,b) =	n ar	nd gco	$\mathrm{d}(a, a)$	c) = c	p, the	en
2. (6 points)	Use the Euclidean	n algorithm	to co	mpute	$\gcd(23$	880, 39	1). Sł	now yo	our v	vork.		
3. (4 points) (Check the (single)	box that be	est ch	aractei	rizes ea	ıch ite	m.					
For any positive $p \equiv q \pmod{m}$	sitive integers p , q and k), then $p^2 \equiv 0$	q , and k , $q^2 \pmod{k}$			true		į	false				

false

true

Name:_ \mathbf{A} \mathbf{B}

NetID: Lecture:

Discussion: Friday 2 3 Thursday 9 **10** 11 12 1 6 4 5

1. (5 points) Is the following claim true? Informally explain why it is, or give a concrete counterexample showing that it is not.

Claim: For any positive integers p and q, $p \equiv q \pmod{1}$.

2. (6 points) Use the Euclidean algorithm to compute gcd(7917, 357). Show your work.

3. (4 points) Check the (single) box that best characterizes each item.

If a and b are positive integers and r = remainder(a, b), then gcd(a, b) = gcd(r, a)

false ${\rm true}$

 $-2 \equiv 2 \pmod{4}$ false true

Name:												
NetID:								В				
Discussion:	Thursday	Friday	9 10		11	12	1	2	3	4	5	6
1. (5 points) showing the	Is the following clat it is not.	aim true? In	nform	ally ex _]	olain w	hy it i	s false	e, or g	ive a	conc	rete e	example
There	is an integer n su	$\text{ich that } n \equiv$	5 (n	nod 6)	and n	= 6 (r	mod 7	')?				
0 (0)	II 41 - 17 - 11 1		4		1/16	004 05	o) di			. 1		
2. (6 points)	Use the Euclidea	n aigoritnm	to co	mpute	gca(12	224, 85	U). SI	now yo	our v	work.		
3. (4 points) (Check the (single)) box that be	est ch	aracte	rizes ea	ach ite	m.					
_	we integers p and q d only if $gcd(p,q)$	-	ely	true		fa	alse					
0 0		true [fals	se]						