CS 173, Fall 18 Examlet 2, Part B

Name:_____

NetID:_____ **Lecture: B**

Discussion: Friday 11 12 1 2 3 4 5

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 $\gcd(a, bc) > 1$, then $\gcd(a, b) > 1$ and $\gcd(a, c) > 1$.

2. (6 points) Use the Euclidean algorithm to compute $\gcd(1012, 299)$. Show your work.

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

   $7 \mid 0$ true ☐ false ☐

   $k \equiv -k \pmod{k}$ always ☐ sometimes ☐ never ☐

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Discussion: Friday 11 12 1 2 3 4 5

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 non-zero integers a and b, if $a \mid b$ and $b \mid a$, then $a = b$.

2. (6 points) Use the Euclidean algorithm to compute $\gcd(2737, 2040)$. Show your work.

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

   $29 \equiv 2 \pmod 9$ true ☐ false ☐

   Two positive integers p and q are relatively prime if and only if $\gcd(p, q) > 1$. true ☐ false ☐