Math 55 Quiz 3 Name: _____
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1. True or False? No justification needed. *(1 point each).*

   (a) Suppose $a, b, c, m \in \mathbb{Z}$. If $ac \equiv bc \pmod{m}$, then $a \equiv b \pmod{m}$.

   (b) Suppose $a, b, c, m \in \mathbb{Z}$ and $c \mid a$ and $c \mid b$. If $a \equiv b \pmod{m}$, then $\frac{a}{c} \equiv \frac{b}{c} \pmod{m}$.

   (c) An inverse of 4 modulo 9 is 5.

   (d) The binary expansion of 2019 is 10010110001.

2. Calculate $\gcd(111, 201)$. Write the gcd as a linear combination of 111 and 201. *(3 points).*

3. Find $4^{2019} \pmod{56}$. *(3 points).*