

**COMP 2711 Discrete Mathematical Tools for Computer Science**  
**2022 Fall Semester – Tutorial 8**

**Question 1:** Find the inverse of 15 mod 26.

**Question 2:** Show that the following equation has no solution

$$16 \cdot_{46} x = 3$$

**Question 3:** Solve each of these congruences using the results  $19 \cdot 52 \equiv 1 \pmod{141}$ ,  $55 \cdot 34 \equiv 1 \pmod{89}$  and  $89 \cdot 73 \equiv 1 \pmod{232}$ .

(a)  $19x \equiv 4 \pmod{141}$

(b)  $55x \equiv 34 \pmod{89}$

(c)  $89x \equiv 2 \pmod{232}$

**Question 4:** Find a solution  $x$  in  $Z_{143}$  that satisfies the following system of equations,

$$x \equiv 4 \pmod{13}$$

$$x \equiv 8 \pmod{11}.$$