

Name: _____

Directions: Show all work. No credit for answers without work.

1. **[5 points]** Solve the following system of congruences; your solution should identify the set of all possible solutions.

$$x \equiv 12 \pmod{15}$$

$$5x \equiv 10 \pmod{19}$$

2. **[5 points]** A large box containing n jellybeans sits on the teacher's desk; we know $n \leq 10,000$. When the jellybeans are divided among 31 students, 17 are left over. When the jellybeans are divided among 17 students, 10 are left over. When the jellybeans are divided among 23 students, 9 are left over. Find n .