**1.** Let $X = \{(a,b) \in \mathbb{Z} \times \mathbb{Z} : a \equiv 5 \pmod 6 \text{ and } b \equiv 3 \pmod 4)\}$ and $Y = \{(a,b) \in \mathbb{Z} \times \mathbb{Z} : 4a + 6b \equiv 6 \pmod 8\}$.

| **Prove:** $X \subseteq Y$. | | |
|---|---|---|
| Method of Proof | Assumption or first step of the Proof | Goal (What you must show/do in the proof) |
| Element chase | | |

Give your proof here.