

$\frac{a}{b} \pmod{n}$ is defined if b has no common factor with n .

Then it denotes the solution to

$$bx \equiv a \pmod{n}.$$

$$f: \{\text{pigeons}\} \rightarrow \{\text{holes}\}$$

$$|\{\text{pigeons}\}| > |\{\text{holes}\}|$$

$$f: A \rightarrow B$$

$$|A| > |B|$$

Then f is not injective.