

Name:

Problem 1: Consider the Chinese Remainder Theorem.

Can the Chinese Remainder Theorem be applied to determine if the system of linear congruences

$$x \equiv 3 \pmod{4}$$

$$x \equiv 5 \pmod{6}$$

$$x \equiv 1 \pmod{7}$$

has a simultaneous solution?

To support your answer, either go through each hypothesis of the theorem and check that it is satisfied; or give (at least) one hypothesis of the theorem that is not satisfied.