

QUIZ #5 – MATH 2200
SPRING 2018

MARCH 30TH, 2018

1. Find all solutions, or explain why there are none, for the following system of congruences: (10 points)

$$\begin{aligned}x &\equiv_5 2 \\x &\equiv_2 1 \\2x &\equiv_3 1\end{aligned}$$

(Recall that $a \equiv_m b$ is the same as writing $a \equiv b(\text{mod } m)$.)

Hint: For the congruence $2x \equiv_3 1$, first transform it into $x \equiv_3 ???$.

2. Explain carefully all the steps in a binary search for the number 7 inside the sorted list

$\{-5, -1, 0, 3, 5, 7, 7.5, 8, 12, 16, 101, 102, 103\}$.

Use complete sentences, and carefully identify what part of the list you are searching at each step. (10 points).