

Math 255 - Spring 2022

$$x^2 \equiv a \pmod{2^k}$$

10 points

This homework invites you to solve two simple quadratic equations modulo a power of 2. Please show all of your work; answers without work will not earn any points. Give all solutions to the following two equations:

1.  $x^2 \equiv 9 \pmod{128}$

2.  $x^2 \equiv 17 \pmod{64}$