

Spring 2020 COT 3100 Section 2 Quiz #2 (Sets, Number Theory)

Name: _____

Please circle your lab section

Lab Section: 11(T4:30)

12(R4:30)

13(R5:30)

14(F3:30)

15(F8:30)

16(F 9:30)

17(F 12:30)

1) (10 pts) Consider taking the remainder of a perfect square when divided by 16. (Note: a perfect square is any integer that can be expressed as an integer multiplied by itself.) What are all of the possible remainders that might occur? (Hint: Consider all integers of the form $n = 8q + r$, where q is the quotient when dividing n by 8 and r is the remainder.) Put a box around each of the possibilities. (Note: Your answer must be a subset of $\{0, 1, 2, 3, \dots, 14, 15\}$.)

2) (8 pts) Determine the remainder when 48^{20} is divided by 17. Put a box around your final answer.

3) (7 pts) Prove or disprove the assertion about finite sets A, B and C:

$$A - (B - C) \subseteq A - (B \cap C)$$