

**COT 3100 Quiz #1 (Version A): Number Theory (6/10/2026)**

**Last Name:** \_\_\_\_\_ **First Name:** \_\_\_\_\_

**Circle Recitation: 3:00 pm (Lab 15)**

**4:00 pm (Lab 16)**

1) (5 pts) Some of the statements below are true and others are false. Please circle true or false accordingly to denote whether each statement listed is true or false.

$$37 \equiv 5 \pmod{8}$$

True

False

$$19 \equiv -7 \pmod{6}$$

True

False

$$107 \equiv -3 \pmod{10}$$

True

False

$$21 \equiv 35 \pmod{5}$$

True

False

$$123456789 \equiv 987654321 \pmod{9}$$

True

False

2) (8 pts) What is the remainder when  $123^{21}$  is divided by 13? Please use any of the methods shown in class to do this calculation quickly by hand and show your work.

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3) (12 pts) Find all integer solutions  $(x, y)$  to the equation  $410x + 152y = 14$ . Express your answer using the format shown in class. Credit will only be given for using the method shown in class.

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