

## Mathematics 300

### Quiz 9

Name: \_\_\_\_\_

*You must show your work to get full credit.*

1. State the definition of *m divides n*.

2. State the definition of *a is congruent to b modulo n*, that is of  $a \equiv b \pmod{n}$ .

3. Which of the following is true and why?

(a)  $6 \equiv 8 \pmod{3}$   
Why?

True or false? \_\_\_\_\_

(b)  $5 \equiv 13 \pmod{3}$   
Why?

True or false? \_\_\_\_\_

4. Prove that if  $a \equiv b \pmod{n}$  and  $b \equiv c \pmod{n}$ , then  $a \equiv c \pmod{n}$ .

5. Prove that if  $a \equiv b \pmod{n}$  and  $x \equiv y \pmod{n}$ , then  $a + x \equiv b + y \pmod{n}$ .