

Mathematics 300

Quiz 11

Name: _____

You must show your work to get full credit.

1. Let a, b, c, d be integers and assume $x \equiv y \pmod{n}$. Prove

$$ax^3 + bx^2 + cx + d \equiv ay^3 + by^2 + cy + d \pmod{n}.$$

2. Let n be an integer with decimal representation $abcd$. Show that $n \equiv a + b + c + d \pmod{9}$.