

CPS102 Recitation

February 1, 2007

Problem 1

Show that if a, b, c and d are integers such that $a|c$ and $b|d$ then $ab|cd$.

Problem 2

Let m be a positive integer. Show that $a \bmod m = b \bmod m$ if $a \equiv b \pmod{m}$.

Problem 3

What are the quotient and remainder when

- a) 44 is divided by 8?
- b) -123 is divided by 19?
- c) 1234567 is divided by 1001?
- d) -100 is divided by 101?

Problem 4

If $a * 133 - m * 277 = 1$, does this guarantee that a has an inverse mod m ?

Problem 5

Solve the following congruence equations for x . a) $8x \equiv 1 \pmod{13}$

b) $99x \equiv 1 \pmod{13}$