

# CSE 191 Recitation

4/3/23 - 4/7/23 - Functions and Sequences



# Modulus

**Compute the following to practice modulo**

$$10 \bmod 5$$

$$15 \bmod 2$$

$$25 \bmod 5$$

$$16 \bmod 2$$

$$1 \bmod 5$$

$$101831237 \bmod 2$$

$$1024 \bmod 5$$

$$0 \bmod 2$$

$$36 \bmod 5$$

$$-15 \bmod 2$$

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Given these examples as a starting point, what are the equivalence classes mod 5 and mod 2, and give some elements in each class.

# Arithmetic Mod N

Compute the following to practice modular arithmetic

$$+ \text{mod}_7(5,6)$$

$$* \text{mod}_7(5,6)$$

$$+ \text{mod}_7(10,6)$$

$$* \text{mod}_7(10,6)$$

$$+ \text{mod}_7(10,7)$$

$$* \text{mod}_7(10,7)$$

$$+ \text{mod}_{12}(-12,18)$$

$$* \text{mod}_{12}(12,102931)$$

$$+ \text{mod}_3(27,33)$$

$$* \text{mod}_3(9,17)$$

# Congruence Modulo

**Determine which of the following are true:**

$$3 \equiv 17 \pmod{7}$$

$$3 \equiv 17 \pmod{4}$$

$$319,283 \equiv 319,294 \pmod{11}$$

# Sequences

Which of the following sets could be the domain of a sequence:

$\{1,2,3,4,\dots\}$

$\{1\}$

$\{-4, -3, -2, -1\}$

$\{-4, -5, -6, -7\}$

$\{-2, -1, 1, 2\}$

$\{2.5, 3.5, 4.5, 5.5\}$

# Sequences

For each of the following determine whether it is increasing, decreasing, non-increasing, non-decreasing, or none of the above.

1, 2, 3, 4, 5, 6, ...

5, 4, 5, 4, 5, 4, 5, ...

1, 6, 10, 11, 72, 300

99, 99, 99, 98, 97, 96, 90

8, -8, -80, -800

9, 8, 7, 6, 5, 4, 5, 6, 7, 8, 9