

CSc 245 Discrete Structures - Summer 2021

# Quiz #4

Due: July 13th, 2021 by 11:59 pm (MST)

1. (10 points) Let  $R = \{(x, y) \mid x - y \text{ is even, } x, y \in H\}$  on  $H = \{1, 2, 3, 4\}$

(a) (3 points) Draw the digraph of  $R$ .

(b) (5 points) For each of the following, specify true or false. If true, briefly explain. If false, specify the pairs that need to be added/removed to satisfy the stated property.

- $R$  is reflexive.

- $R$  is irreflexive.

- $R$  is symmetric.

- $R$  is antisymmetric.

- $R$  is transitive.

(c) (2 points) What type of relation is  $R$ ?

- A. Equivalence Relation
- B. Weak Partial Ordering
- C. Strong Partial Ordering
- D. Total Ordering
- E. None of the above.