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CST-215

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Assessment 10

8.1

a.) yes

b.) {a} is related to {b,c} because the intersection of {a} and {b,c} is the entire set

c.) no

d.) If the empty set intersects with {a,b,c} then the relational statement J does not hold true on P(X)

e.) yes

f.) if {a,b} intersects with {b,c} you will be left with {a,c} which is not the empty set so it holds true

8.2

a.)

b.) not reflexive because (1,2) is not reflexive of itself

c.) it is symmetric because every order pair that appears has a symmetric equivalent, (1,2) and (2,1) (1,3) and (3,1)

d.) not transitive let 1 be x, 2 be y, and 3 be z; therefore x relates to y and x relates to z but y does not relate to z. (1,2) does not relate to (1,3)

The relation of the number of elements in A being less than the number of elements in B between A and B is not reflexive because there are no duplicate elements within the set i.e. suppose {a} belongs to A and {b,c} belongs to B but {b,c} is not reflexive with {c,b}

It is symmetric because {a} is symmetric with {a} and {b,c} is symmetric with {c,b}

It is not transitive because {a} does not relate to any element in the set and b relates to c but c relates to b again and because it is not reflexive it cannot be transitive

M relates to N iff 4 is able to divide (M-N)

Reflexive: It is reflexive because any ordered pair (M,N) is also within the set Z as itself (M,N)

Symmetric: It is not symmetric because any specific ordered pair [i.e. 18 and 2] may satisfy the condition but the symmetric equivalent does not [2 and 18] does not satisfy the exchange

Transitive: It is transitive because any element in the set Z is only an element if m – n is divisible by 4 so therefore any ordered pair (a,b) and (b,c) exist in the set and (a,c) must relate in the set [i.e 18 and 6, 6 and 2, 18 and 2]