211/1A 20 v.good

Name..... Number.....

1.Sympolize in simple statements.

No student passes the exame if he doesnt work hard.But there are students who failed the exam but they worked hard

$x \equiv$ student

$p \equiv$ working hard

$q \equiv$ passing the exam.

$(\forall x : (\neg p \Rightarrow \neg q)) \wedge (\exists x : (\neg q \Rightarrow p))$

$\exists x : (\neg q \wedge p)$

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2.Symp .and Negate.If f is a differentiable function then f is continous.The converse is not true.

$p \equiv f$ is differentiable

$q \equiv f$ is cont

$p \Rightarrow Q \wedge \neg(Q \Rightarrow p)$

$(p \Rightarrow Q) \wedge (Q \wedge \neg p)$

5

The negation: $(p \wedge \neg Q) \vee (\neg Q \vee p)$

3.T .F.J. $\{4\} \in \{1,2,\{2\},3,,4,\{4\},5,6\}$

If have two fases.

2

① True

If $\{4\}$ element

because $\{1,2,\{2\},3,,4,\{4\},5,6\}$

have this element

② False

If $\{4\}$ is Group because

$\in$ we write this symbol between elements and Group not Group and Group.

4.T .F.J For all sets A,B,C we have $A-(B-C)=(A-B)-C$

False

If $A=\{1,2,3\}$

$B=\{1,2,4\}$

$C=\{1,5\}$

$A-(B-C) \Rightarrow$

$A-\{2,4\} \Rightarrow$

$\{1,3\}$

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$(A-B)-C$

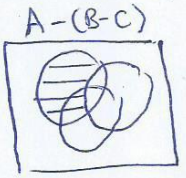
$\{3\}-C$

$\{3\}$

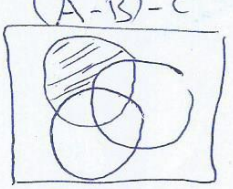
$\{1,3\} \neq \{3\}$

so it's false

A-(B-C)



(A-B)-C



25 v.good

211/2M

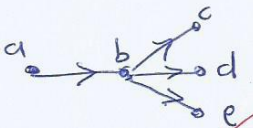
Name: [redacted] Number: [redacted]

1.Give the definition of a chain .

It's subset from a Relation, but it must be totally order

B called achain if $B \subseteq A$, Let $(x,y) \in B$ so we should find (x,y) or (y,x) in B.

2.Give an example of a partially ordered set with three maximal one minimal one lower bound



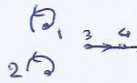
$A = \{(a,b),(a,c),(a,d),(a,e),(b,c),(b,d),(b,e),(a,a),(b,b),(c,c),(d,d),(e,e)\}$

a → lower bound
a → minimal
c, d, e → three maximal.

3.T .F.J .There exists a partial oreder on the natural number with two maximial elements $(\mathcal{N}, \leq)$

$$R = \begin{cases} (x,x) & \text{, if } x < 3 \\ x \leq y & \text{, if } x \geq 3 \end{cases}$$

$R = \{(1,1),(2,2),(3,3),(3,4),\ldots\}$



So $\{\{1\},\{2\}\}$ 1, 2 are max

* two maximal element

that example give you 2 maximal from natural Numer

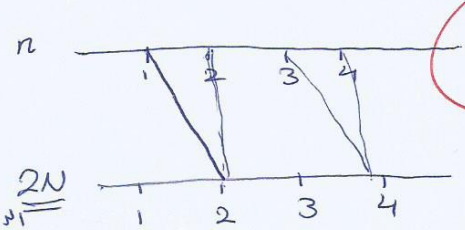
*if we could take subset from $\mathcal{N}$ $\{2,4,6,8,12,36\}$ xRy if x/y

T,F 4.On $(N,\leq)$ there exists an order preseving map which is not 1-1

$\mathcal{N} = \{1,2,\ldots\}$

xRy if x/y it's order preserving but it isn't (1-1)

order preserving say that if $x \leq y$ then $f(x) \leq f(y)$



$1 \leq 2$, $f(1) \leq f(2)$
$2 \leq 3$, $f(2) \leq f(3)$

$f(x) = ?$

so it's order preserving but not (1-1)

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211/11B

Name... [redacted]

Number..... [redacted]

1.Sympolize in simple statments : some body hates every body

y, x: variables

$p(x,y)$: x likes y.

$(\exists x \forall y : -p(x,y))$

10

2.Symbolize and Negate:some body loves some body

x, y : variables

$p(x,y)$: x loves y

$\exists x \exists y : p(x,y)$

10

the negate $\forall x \forall y : -p(x,y)$

every body hates every body.

3.T .F.J.For all sets A ,B , and C : $A \cap C \neq \phi$ and $B \cap C \neq \phi$ gives $A \cap B \neq \phi$

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$A = \{1,2,3\}$

$B = \{4,5\}$

$C = \{4,3\}$

10

$A \cap C = \{3\} \neq \emptyset$

$B \cap C = \{4\} \neq \emptyset$

$A \cap B = \emptyset$ the statment is false.