Completeness Axiom
X = 4 X = R = T X is bounded above, Then sup X exists in R
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€ Y Y± & Y Y CD 7+ W CV LOV YCU The D CCD
€7. X, Y ≠ \$ X, Y ⊆ R. Zf Yx ∈ X y ∈ Y X ≤ y Then. ∃ C ∈ R.
for tx, y x=y XSCSY Ne larg.
The happy
Provo. => just choose c = sup X so \( \times
C < y for YyeY.
E Alluma VII
E assume X to X ER. X is bounded above. We need to prove sup X
exists
X is bold above so X has upper bound
NIS SALA ASOR. SO MAIS OFFICE SOUNA
Y= 1 y \in X \ X \ X \ Y \ Y is the set of upper bounds
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so. EXEX BYEY, We have XXY
FCER XSCSY
*
so c is also upper bound CEY
by CEY we know ( is min element in Y
by defination of sup. C = sup X
3 theorems will be used frequently
(1). XSY HERD. XSYTE.
(2). If S has sup in R. then. Then. IXES YETO. IXES SUPS-E <x <="" sups<="" td=""></x>
(3). If Show int in K then VEND IXES infStE>X7, infS