QUIZ 1
Student Name: Answer Lay Student Number:
1. Prove that if $ab = 0$ and $a + b = 0$ , then $a = 0$ and $b = 0$ . Justify each step.
Suppose $ab=0$ and $a+b=0$ Suppose $ab=0$ and $a+b=0$ $ab=0 \implies a=0$ or $b=0$ , supposed this result in class.
ab=0=> a=v or b=v , weptor
adolltivi identity
= a+b / since a=0 = a+b / since a+b=0 by hypothesis
= 0 /3 m/2 of by a
Casez. b=0, repeat the argument in case 1 but replace by a
Case 1 & case z => a=0 & b=0.
2. Let $a, b, c \in \mathbb{R}$ , prove that if $a \leq b$ and $c \geq 0$ , then $ac \leq bc$ . Justify each step.
case 1. a < b and c=0
ase 1. a < b and c=0  => a0=0 & b0=0 => ac=bc => ac=bc
Casez. a < b & C > 0  multiplicative property  a c < b c , multiplicative property
=> ac <bc ,="" multiplicative="" pri<="" td=""></bc>
=> acebc
Case 3. a=b & C=O similar to case 1
Case2. a < b & C > 0  => a C < b C  => a C < b C  => a C = b C  Case3. a < b b C = 0  => a c = b c => a c < b c  => a c = b c => a c < b c  => a c = b c => a c < b c  => a c = b c => a c < b c  => a c = b c => a c < b c  => a c = b c => a c < b c  => a c = b c => a c < b c  => a c = b c => a c < b c  => a c = b c => a c < b c  => a c = b c => a c < b c  => a c = b c => a c < b c  => a c = b c => a c < b c  => a c < b c  => a c < b c  => a c < b c  => a c < b c  => a c < b c  => a c < b c  => a c < b c  => a c < b c  => a c < b c  => a c < b c  => a c < b c  => a c < b c  => a c < b c  => a c < b c  => a c < b c  => a c < b c  => a c < b c  => a c < b c  => a c < b c  => a c < c < b c  => a c < c < c < c < c < c < c < c < c < c
Case 4. a=b & czo => ac = bc, replace aby b since a=b
Dac = bc, replace