	PARTA
1.	Prove:
	(append (append xs ys) = (append xs (append ys zs))
	PART A : BASE CASE { x3 → '()}
	Assume Xs = '()
	Assaure vs - C)
	(append (append xs ys ) zs)
	= { by ascumption, xs = '()}
	(append (append '() ys ) zs)
	5
	= 2 by append-nil law 3
	( approx 4 a )
	(append ys zs)
	= { by append-nil law from right to left }
	5 - 9 abbaior rue issue lessue of 2
	(append '() (append ys zs))
	·
	= $\frac{1}{2}$ by assumption $xs = '()^{\frac{1}{2}}$
	(append xs (append ys zs))
	DART R ' Tole WATER WASTING
	PART B: INDUCTIVE HYPOTHESIS
	Given KS = (coms a as)
	Then inductive Importages:
	Then inductive hypothesis:  (append (append as ys) zs) =
	(append as (append ys zs))
	C-11

PA	ART C: INDUCTIVE CASE (XS $\mapsto$ (cons a as))
	(append (append xs ys) zs)
	= $\begin{cases} by \text{ areumption } xs = (cons a as) \end{cases}$
	(append (append (coms a as) ys) zs)
	= { by append - cons law }
	(append (coms a (append as ys)) zs)
	= Eby append - cons law }
	(ums a (append (append as ys) zs))
	= { by inductive - hypothesis }
	(coms a (append as (append ys zs)))
	= { by append - cons law from right to left }
	(append (coms a as) (append ys zs))
	= { by assumption, xs = (cons a as) }
	(append xs (append ys zs))
PA	ART D: CONCLUSION
Th	us from the above inductive proof, we can conclude
ie -tv	us from the above inductive proof, we can conclude at appending lists is an associative operation,
<b>(</b> c	append (append xs ys) zs) = (append xs (append ys zs))