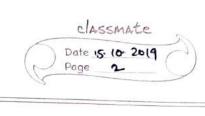


RECORSION

1. AST annotation Correlarity between closures & environment Cextended - rec-env) 2 interpreter ()-calculus). 3 y-combinator (actine (a) Ugn Coefine a Clambda (f) (Tambda (n) (if (= n 0) (* n (f (- n i)))))) G: (N - N) - (N - N) 61 - (G1) = 1 I is a fixed fount of or 4 g -> f) adfine \$5 Clambda (6) (f f))) (define as (lamada (g))
(gg)



Caepine (rg)
(let (ls (lamboda (ri)

y (g): s = 2 → g (x(x))

s (s)

(n) -> if n==0 then 1 else n * f (n-1)

(n) -7 if n==0 then I eise n & f (n=1)

Y(3):

where $s = (k) \rightarrow g(x(k))$

Y(c₁)

= 9 (8 (S)) • 9 (9 (8 (S)))

= s (s)

s(s)

9 (9 (8)))

Ya (g): s(s)

where $s = (x) \rightarrow (n) \rightarrow g(x(x))(n)$



	cases syntax define-datatype
	Cond number? null? list? symbol?
	(car)
	(car) (birst second) (memq) (codr) (cons) (cools)?
	(match) (match-lambda). (match-let).
	(define-datatype ast ast?
	[num (n number?)]
	[plus (left mast?) Cright ast?)]
	Eminus (left ast?) (night ast?)]
	[mul Cleft act?) (right ast?)])
	(2 ca)
	Crases ast a
	I num (n) m]
	[plus Clebt regint) (trieght major)
	Clet
	CEL (eval lest)]
	[r (eval right)])
	(+ e r))]
	Iminus Cleft right)
1	Ctet .
	CER (eval left)]
	[r (eval right)])
	(+ e r))]
	[mul]))

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=	Comeng value list) -> index	
	(apply). #t #f (boolean?)	
	,	
	V v v v	
	(6)	