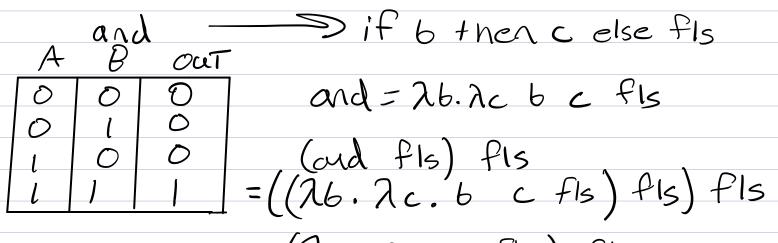
Midtern Studying tru = 2x.2y.x 1) (nor Fls) fls - tru fls = Ax. Dy. y 6 then fls else (not c) OUT nor = 76.7c.6 fls (not c) = (nor fls) fls = ((26. 2c. 6 fls (notc)) fls) fls (7.c fls fls (not c)) fls not (fls fls) (not fls) = 26. 6 fls tru (7x. 7y. y fls) (not fls) = if b then fls else tru b=tru out -> tru) (not fls) b=fls out ->fls =(2.66 fls tru) fls =(fls fls) tru (2x. 2y.yfls) tru



$$E \times 1 = (Ac. fls c fls) fls$$

= (fls f(s) fls
= ($A \times . A y . y fls$) fls
= fls

$$Exa = (and tru) tru$$

$$= (\lambda 6. \lambda c. 6 c fls) tru) tru$$

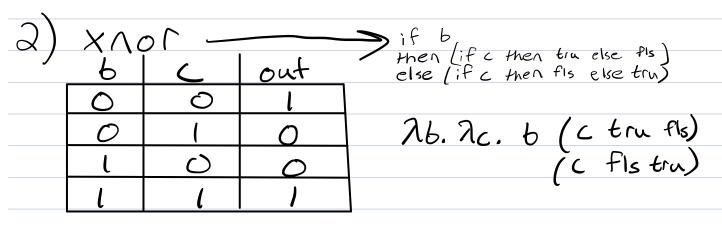
$$= (\lambda c. tru c fls) tru$$

$$= (tru tru) fls$$

$$= (\lambda x. \lambda y. x tru) fls$$

$$= (\lambda y. tru) fls$$

$$= tru$$



3) imply				else tru else fis)
	6	ر ر	out	else tru else fis)
	0	0		
	0	(76.2c. b (c tru fls) tru
	l	a	O	
	1	1	1	

=(imply tru) tru

=(\(\lambda b. \lambda c. b \) (c tru fls) fls) tru) tru

=(\(\lambda c. \) tru (c tru fls) fls) tru

= tru (fls tru fls) fls)

=(\(\lambda x. \lambda g.x) \) (fls tru fls) tru

=(\(\lambda y. \) fls tru fls) tru

= fls tru fls

$$= (\lambda x. \lambda y. y tru) fls$$

$$= (\lambda y. y) fls$$

$$= fls \checkmark$$

4)
$$C_0 = \lambda_5. \lambda_7. z$$

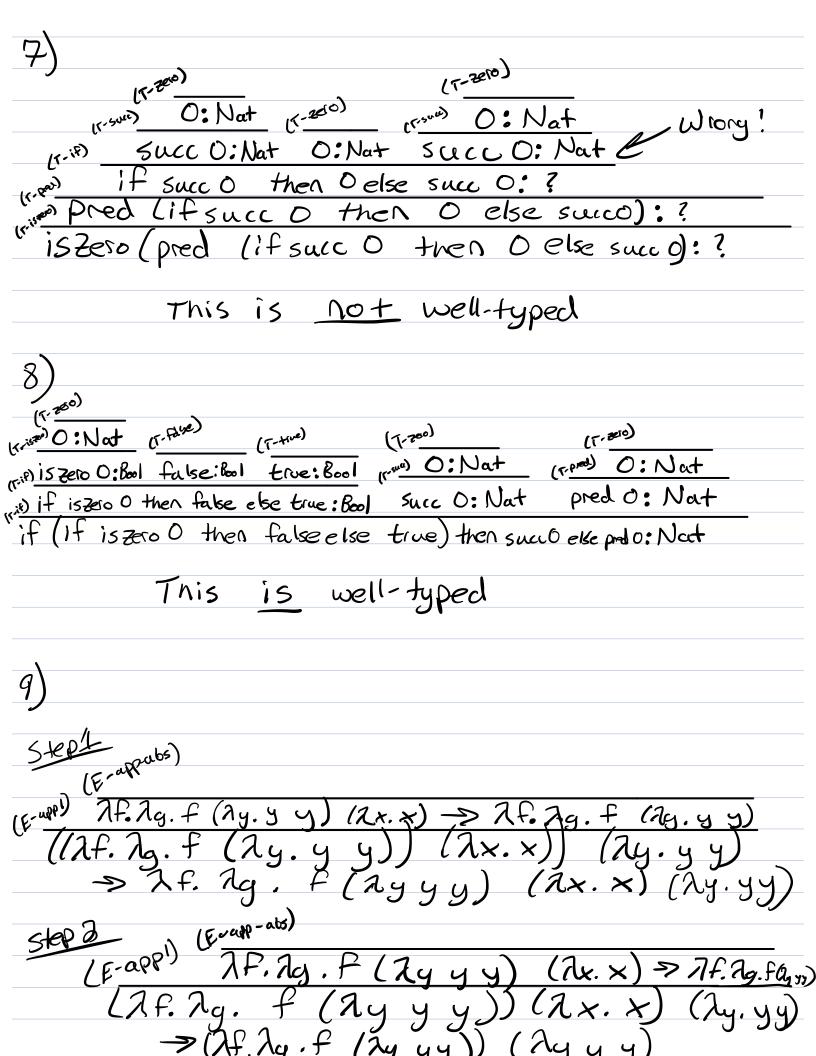
 $C_1 = \lambda_5. \lambda_7. s = 0$
 $C_0 = \lambda_5. \lambda_7. s = 0$
 $C_3 = \lambda_5. \lambda_7. s = 0$
 $C_3 = \lambda_7. \lambda_7. s = 0$

$$pail = \lambda x. \lambda y. \lambda z. \neq xy$$

 $fst = \lambda p. p tru$
 $snd = \lambda p. p fls$

pred=
$$2n. fs+(n. ss. zz)$$
where $ss=pair(sodp)(successdp))$
 $zz=2p. pair(sodp)(successdp))$

$$succ = \lambda_1 \cdot \lambda_5 \cdot \lambda_7 \cdot s \cdot (1 s = 1)$$
add = $\lambda_i \cdot \lambda_j \cdot i succ j$



5tep 3
[6 2]

(27. 29. + (2. 44) -> Value!

(27. 29. + (24. 44) (294) ->? Reduction/Evaluation
10) ((\(\chi_{\text{X}}, \text{X}) (\chi_{\text{Z}}, (\chi_{\text{Z}}, \text{X}) \text{Z})) (\(\chi_{\text{X}}, \text{X}) > (7x.x) (7z.(2z.x)2) Step2: > (22.72.x)z) > Value! (7x, 2z, x) (7f. 2y, fy) (2g.g)

II) $(\lambda_x, \lambda_z, x) (\lambda_f, \lambda_y, f_y) (\lambda_g, g)$ $(\lambda_x, \lambda_z, x) (\lambda_f, \lambda_y, f_y)$ $(\lambda_x, \lambda_z, x) (\lambda_f, \lambda_y, f_y)$ $(\lambda_x, \lambda_z, x)$ $(\lambda_x, \lambda_z, x)$ $(\lambda_x, \lambda_z, x)$ $(\lambda_y, \lambda_z, x)$ $(\lambda_y, \lambda_z, x)$ $(\lambda_y, \lambda_z, x)$ $(\lambda_y, \lambda_z, x)$