## Homework E.13 - Solution

	Sola	
E.13		_
	The inner loop in	
	$\frac{1}{-\sqrt{-1}} \frac{e}{h_0 s + h_0} \frac{1}{h_0 s + h_0} \frac{a}{s^2} \frac{1}{s^2} \frac{a}{s^2}$	
	Land a resident for the Land State (Congress and Art Congress and Art Cong	
	where	
	where a, = i small + m, ye	
	The open boys TF so	
	P(s) c(s) = (=) (ks + kp)	
	to be desired to the second of	
	two free integrators => Type 2	
	ss error to step = 0	
	ss error to range =0	
	55 error to garabola = 1-5-875)(15) = akp	
	The TF from d to e so	
	9/62	
	$E(s) = \frac{P(s)}{1 + P(s)C(t)} D(s) = \frac{9/5^2}{1 + \left(\frac{9}{5^2}\right)(k_0 s + k_0)} D(s)$	
	(5-) (RO 07-ED)	
	$=$ $Q_{ij}$	
	= 3° + a, k0 s + a, kp D(s)	
	Il Dis = 500 Then the ss error is	
	kan a mandara penang sinderakan menghadian bandara sa abana dan pendenan andari sebagai penanggalah dan berama	
	$\frac{1}{t^{200}} = \frac{1}{t^{200}} = \frac{1}{t^{200}$	
	which is finite when g =0 => Type O with distributions	
	and the error by a step on of so The	
	2	

	Sola
E.13	The outer loop is $ \frac{2^{1}}{50} - \sqrt{\frac{1}{50}} = \sqrt{\frac{2}{50}} $
	The open hour $TF$ no  Pls) $c(s) = \left(-\frac{9}{5^2}\right)\left(\frac{k_0 s^2 + k_0 s + k_0}{s}\right)$
	without integrator! Type 2  SS error to step = 0  SS error to ramp = 0
	ss error to perchel = 1 3 Places = - 3 kp
	55 error b A = 0  55 error b A = 53PC 9kg
	The TF from d to e as $E(s) = \frac{P(s)}{1 + P(s)} 0 = \frac{-9/s^2}{1 + (-9/s)(kos^2 + kpcs + kg)} 0(s) = \frac{-9.5}{5^3 + (-9/kp)(s)(-9/kp)} 0(s),$
	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
	without integrater; (ks = 0) Type O an is error to a  step so ke  with integrater; Type 2 and 55 error to a ramp is ks  3