SIGSYS PS 10 - 04.05.2015 Jennifer Wei YCS) = X + transform 2A Find the DC gain of 1/2p(5) given K(s) = KI integral controller X (5) K-(5) Ving Black's formula, (KI/S)H KIH kН u(t)] 1+ KH 1+ (KI/5) H S+KzH SOLVE FOR 4+8 of A(S+1) + B(s)partial fraction to Y (s) make the S+VT Yep (s) inverse Laplace Yes = K+ H EASIER (KI)/T S USING FOR QUADRATIC USING THE GIVEN PROPERTIES 0- at (t) V bil- Hac POLES Z~ V(/t)2-4(1)(KI/T) 95} > √=- - 4KI/T $-\frac{1}{5+1}$) = $u(t) - u(t) e^{-t}$ V=44=/T Pr\$5} = Im 95} $= \frac{1}{2} - \frac{1}{2} + \frac{$ Re 957 The easiest way to describe = Biolon process is with a diagram o f Convergence X(t) -> [K(t)] -> Y(+) Gain is not dependent on X(S) -> HC5) -> Y(S) - H(S) X(1) is always 1 Sapproaches To get to y(t) the easiest route would be to transform X(t) to X(1) multiply with H(s), and use the inverse Note: There are no zeros since laplace transform. the numerator is not We mustiply by the Laplace of u(t) since dependent on S. We want the step response of the system, so x(+) in the diagram is our

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http://nbviewer.ipython.org/github/jenwei/SigSys2015/blob/master/PS10.ipynb