



Laplace transform pairs (used throughout)

- 10 Laplace identities (2 from list below used)
  - 2 Derivative  $d/dt$
  - 2 Multiply by  $t$
  - 2 Integrate in  $t$  domain
  - 2 Multiply by  $e^{-at}$
  - 2 Delay
  - 0 Divide by  $t$
  - 0 Time scaling
- 10 Inverse Laplace (partial fractions) (1 from list below used)
  - 2 real roots
  - 4 complex roots
  - 2 repeated roots
  - 2 plot poles and zeros
- 10 Initial and Final Value Theorems (1 from list below used)
  - 5 Initial value theorem
  - 5 Final value theorem
- 30  $s$ -domain circuit model (including initial condition sources)
  - . 10 initial condition sources
  - . 10  $sL$ ,  $R$ , and  $1/sC$
  - . 10  $\mathcal{L}\{\text{sources}\}$
- 10  $V_o(s)$  from  $s$ -domain circuit
- 10  $v_o(t)$  from  $V_o(s)$

Use 50 points of 80, then double the pts. 30 pt prob may be broken into separate 10 pt pieces.