

### I. Finding $p(D)$

**Quiz:** Suppose  $W(s) = \frac{1}{(s+2)(s+3)}$  is the transfer function for the system  $p(D)x = f(t)$ . What is  $p(D)$ ?

**Choices:**

- a)  $e^{-2t} - e^{-3t}$
- b)  $D^2 + 5D + 6I$
- c)  $1/(D+3)(D+2)$
- d) It doesn't exist
- e) Can't be found with the data given

**Answer:** (b)

$$W(s) = 1/p(s) = 1/(s^2 + 5s + 6) \Rightarrow p(D) = D^2 + 5D + 6I.$$

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