I. Finding $p(D)$

Quiz: Suppose $W(s) = \dfrac{1}{(s+2)(s+3)}$ 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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