

Math 307 Quiz 7

June 4, 2014

Problem 1. For each of the following, determine the correct form of the partial fraction decomposition

Example The form of the PFD of $\frac{3s+4}{(s-1)^2}$ is $\frac{A}{s-1} + \frac{B}{(s-1)^2}$

$$(a) \frac{2s+3}{s^2+2s+1} \quad (b) \frac{3s^2}{(s^2+s+4)(s-2)} \quad (c) \frac{3s+5}{(s^2+4s+3)}$$

Problem 2.

(a) State the definition of the Laplace transform $F(s) = \mathcal{L}(f(t))$.

(b) Determine the Laplace transform $F(s)$ of

$$f(t) = e^{2t} \sin(t)$$

using only the basic definition of the Laplace transform.

Problem 3. Determine the inverse Laplace transform of

$$F(s) = \frac{3s+5}{s^2+s+4}$$

Problem 4. Determine the inverse Laplace transform of

$$F(s) = \frac{s-5}{s^2-s-6}$$