

MATH 3113 – Homework assigned on 10/23/13

Sec. 7.4: Problems 7, 16, 17, 22, 23, 31, 36.

Hint for Problem 22: Use Theorem 3 on p. 478 of the book.

Hint for Problem 31: By Theorem 2 on p. 469 of the book,

$$\mathcal{L}\{tx'(t)\} = -\frac{d}{ds}\mathcal{L}\{x'(t)\} = -\frac{d}{ds}[sX(s) - x(0)] ,$$

and similarly for $\mathcal{L}\{tx(t)\}$ and $\mathcal{L}\{tx''(t)\}$, to show that $X(s)$ satisfies the separable differential equation $X'(s) = -\frac{3}{s-2}X(s)$; then solve this equation.