

MATH 445 ASSIGNMENTS 4 AND 5
Fall 2009
Prof. Alexander

Assignment 4 due Friday September 25:

Kreyszig:

11.4 p. 499 #2, 9, 10, 13

11.6 p. 505 #2, 5, 11, 13, 15 (Do just $N = 1, 2, 3$ in #2, 5.)

11.7 p. 512 #3, 4, 9, 12, 15

Some even-numbered solutions:

11.4 (10) $2(\sin x - \frac{1}{2} \sin 2x + \frac{1}{3} \sin 3x - \dots)$

11.6 (2) $F(x) = \frac{\pi^2}{3} - 4 \left(\cos x - \frac{1}{4} \cos 2x + \frac{1}{9} \cos 3x - \dots + \frac{(-1)^{N+1}}{N^2} \cos Nx \right)$. Errors 4.14, 1.00, 0.38.

11.7 (12) $\frac{2}{\pi} \int_0^\infty \frac{1 - e^{-a(\cos wa - w \sin wa)}}{1+w^2} \cos xw \, dw$

Assignment 5 due Friday October 2:

The Assignment 5 due date is after the midterm, but you should work these problems before the midterm, because the material IS covered on the midterm.

Table III p. 531 will be included with the exam.

Kreyszig:

11.8 p. 517 #1, 4, 5, 8, 13, 14

11.9 p. 528 #6, 7, 9, 10, 14ab

HINT FOR 11.9 #10: Let $g(x) = e^{-x}$. Relate f' , f and g to each other.

Answer to some even-numbered problems:

11.8 (8) $\sqrt{\frac{2}{\pi} \frac{2w \cos w + (w^2 - 2) \sin w}{w^3}}$ (14) $\sqrt{\frac{2}{\pi} \frac{\sin \pi w}{1 - w^2}}$

11.9 (6) $\sqrt{\frac{2}{\pi} \frac{i}{w^2}} (w \cos w - \sin w)$ (10) $\frac{1}{\sqrt{2\pi}(1+iw)^2}$