

Chap.	Short Prob.	Long Prob.
E15	S2, S4	S6, R1, #1-2, ws
Q1	S2, S4	S6, S7, R2, ws
Q2	S1, S9	S5, S12, R1, ws
Q3	S2, S3	S6, S8, R1
Q4	S3, S5	S8, S9, R2
Q5	B9, S3	S4, S6, R1
Q6	B5, S3	S7, S9, R2, ws
Q7	B5, S1	S5, S6, S9
Q8	B3, S8	S2, S6, R1
Q9	B2, B4	S2, S4, ws
Q10	S1, S2, S5	S8, R1, ws
Q11	S1, S3	S4, S6, #3
T1	S3, S9	S5, S7
T2	S3, S4	S2, S7, S6, R1
T3	S2, S7	S4, S5, S9, R1
T4	B3, S3	B2, S4, S6, S8
T5	S2, S7	S3, R2, ws
T6	B3, S3	S4, S6, S8
T7	S2, S7	S3, R2, ws
T8	B3, S3	S1, S6, S8
T9	S2, S7	S3, S9, S14, R2

Schedule of homework/assignments due. Note that reading and short problems are due on Tuesdays and Thursdays at 9:30 am and long problems are due Fridays at 4 pm. Corrections to short problems are due the next class period at 9:30 am and solution to the long problems are due the following Friday at 4 pm.

Tuesday	Thursday	Friday
1/8 none	1/10 E15	1/11 E15
1/15 Q1	1/17 Q2	1/18 Q1&Q2
1/22 Q3	1/24 Q4	1/25 Q3&Q4
1/29 Q5	1/31 Q6	2/1 Q5&Q6
2/5 Q7	2/7 Q8	2/8 Q7&Q8
2/12 Q9	2/14 Q10	2/15 Q9&Q10
2/19 Q11	2/20 Q11 long	2/22 exam
Spring Break		
3/4 T1	3/6 T2	3/7 T1&2
3/11 tba	3/13 tba	3/14 tba
3/18 T3	3/20 T4	3/21 T3&T4
3/25 T5	3/27 T6	3/28 T5&T6
4/1 T7	4/3 T8	4/4 T7&T8
4/8 T9	4/10 T9 long problems	

Extra Problems:

- Finish proving the Fourier theorem
 - Show $\int_{-l}^l \cos \frac{n\pi x}{l} \cos \frac{m\pi x}{l} dx = \delta_{nm} l$.
 - Find an expression for the Fourier coefficient b_n .
- Assume that there is a Fourier series converging to the function f defined by $f(x) = -x$ if $-l \leq x < 0$ and $f(x) = x$ if $0 \leq x < l$ with $f(x+2l) = f(x)$.
 - Plot this function.
 - Determine the coefficients in the Fourier series.
 - Write the function as a Fourier series.
- At time $t=0$ a particle is represented by the wave function

$$\Psi(x,t) = \begin{cases} A \frac{x}{a}, & \text{if } 0 \leq x \leq a, \\ A \frac{(b-x)}{(b-a)}, & \text{if } a \leq x \leq b, \\ 0, & \text{otherwise,} \end{cases}$$

where A , a , and b are constants.

- Normalize Ψ (that is, find A in terms of a and b).
- Sketch $\Psi(x, 0)$ as a function of x .
- Where is the particle most likely to be found, at $t = 0$?
- What is the probability of finding the particle to the left of a ? Check your result in the limiting cases $b = a$ and $b = 2a$.