Physics 233 – General Physics 3 **Homework**

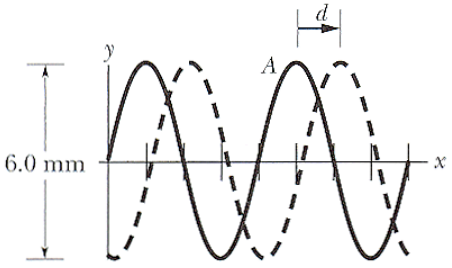
Schedule of homework/assignments due. Note that reading and short problems are due on Tuesdays and Thursdays at 9:30 am and long problems are due Fridays at 2 pm. Graded short problems will be returned during the same class, long problems will be available Mondays at 9 am. Corrections to short problems are due the next class at 9:30 am and to the long problems are due the following Tuesday at 9:30 am.

Chap.	Short Prob.	Long Prob.
E15	B5, #1 below	S2, S5
Q1	S2, B7, S8	S6, S7, R2, ws
Q2	B5, S2, S8	S5, S12, R1, ws
Q3	B3, B4, S4	S2, S8, R1
Q4	B3, B6, S4	S5, S8, R2
Q5	B7, B10, S3	S4, S6, R1
Q6	B1, B6, S4	S7, S9, R2, ws
Q7	B2, B5, **S1**	S5, S6, S9
Q8	B1, S5, S8	S2, S6, R1
Q9	B2, S2	B5, S4, ws
Q10	S1, S2, S5	S8, R1, ws
Q11	S1, S4	S3, S6, #2 below
T1	S3, S9	S5, S7
T2	RE1, S4	S2, S7, S6, R1
T3	S2, S7	S4, S5, S9, R1
T4	B3, S3	B2, S4, S6, S8
T5	S3, S7	S2, R2, ws
T6	B2, S3	S4, S6, S8
T7	S2, S7	S3, R2, ws
T8	B3, S3	S1, S6, S8
T9	S6, S7	S3, S9, S14, R2

Tuesday	Thursday	Friday
9/6 E15	9/8 Q1	9/9 E15 &Q1
9/13 Q2	9/15 Q3	9/16 Q2&Q3
9/20 Q4	9/22 Q5	9/23 Q4&Q5
9/27 Q6	9/29 Q7	9/30 Q6&Q7
10/4 Q8	10/6 Q9	10/7 Q8&Q9
10/11 FB	10/13 Q10	10/14 Q10
10/18 -10/21 optics appreciation week		
10/25 Q11	10/27 rev	10/28 Q11
11/1 rev	11/3 T1	11/4 T1
11/8 T2	11/10 T3	11/11 T2&T3
11/15 T4	11/17 T5	11/18 T4&T5
11/22 T6	Thanksgiving Break	
11/29 T7	12/1 T8	12/2 T6&T7&T8
12/6 T9	12/8 rev	12/9 T9
12/14 exam 3 pm		

Extra Problems:

1. A sinusoidal wave moving along a string is shown twice in Figure 16-32, as crest *A* travels in the positive direction of an *x* axis by distance *d* = 0.65 cm in 86.0 ms. The tick marks along the axis are separated by 0.5 cm. Include rad in your units where appropriate. The wave equation is of the form: $y(x,t) = y_m \sin(kx \pm \omega t)$



   a. What is the amplitude, y_m?
   b. What is the wavelength?
   c. What is the wavenumber, *k*?
   d. What is the angular frequency, ω?
   e. What is the frequency, *f*?
   f. What is the correct choice of sign in front of ω?

2. At time $t = 0$ a particle is represented by the wave function

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

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