Chapter 2

1.Erratum:

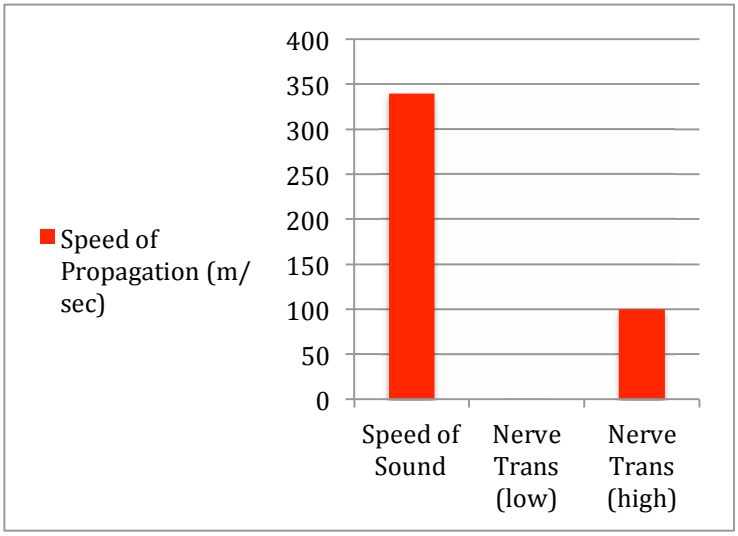
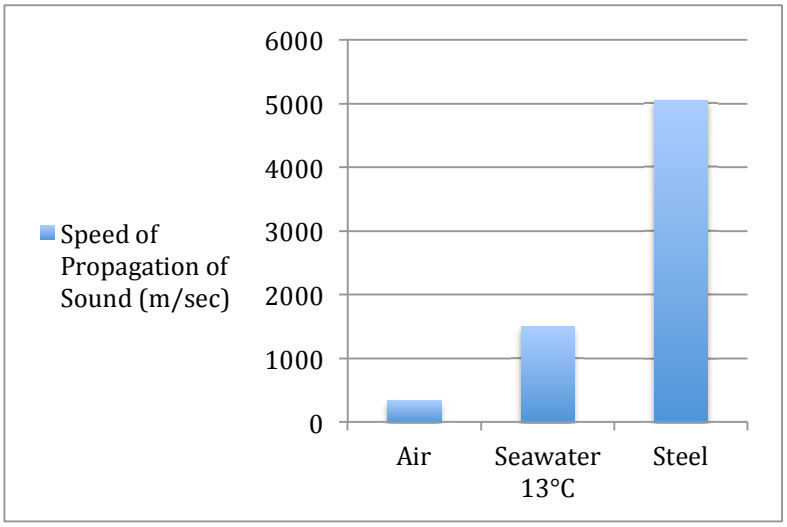
In the first printing, in Table B.2 on page 29, the figure for atmospheric pressure in kilograms/m^2 is given as ~~1,0332.3~~ rather than 10,332.3.

2. Comment on the exerci

Significant digits are not introduced until Chapter 3 (in Refresher C). Therefore, close attention has not been paid to significant digits in the answers below.

3. Questions & Problems, pp 21-22

Sugg. Points	Q #	**Suggested answer.** [*Additional material, not called for by the nature of the question, or comments directed to the instructor, are shown in italics.]*
1	1	Source-filter Theory
1	2	A medium through which to propagate
1	3a	The word "travel" doesn't clearly express how sound energy is displaced from its point of origin
1	3b	"Sound propagates from Point A to Point B."
1	3c	The corrected sentence gives a more accurate view of how energy is transmitted through a medium. Sound is energy that interacts with its medium in order to propagate; it isn't a "thing" that "moves" or "travels."
1	4a	340 m/sec or 3.4 x 10^2 m/sec
1	4b	The first two digits are significant, but not the last one; this is an approximation. [Actual speed of propagation will depend on such factors as temperature, humidity, atmospheric pressure, and so on.]
1	5	Mach 1

Sugg. Points	Q #	**Suggested answer.** [*Additional material, not called for by the nature of the question, or comments directed to the instructor, are shown in italics.]*
3	6	*[data to be found on page 10]* 
3	7	*[data to be found on page 9]* 
2	8	answer: 8.3 m/sec $\frac{500\ m}{60\ sec} = 8.333\ m/sec$

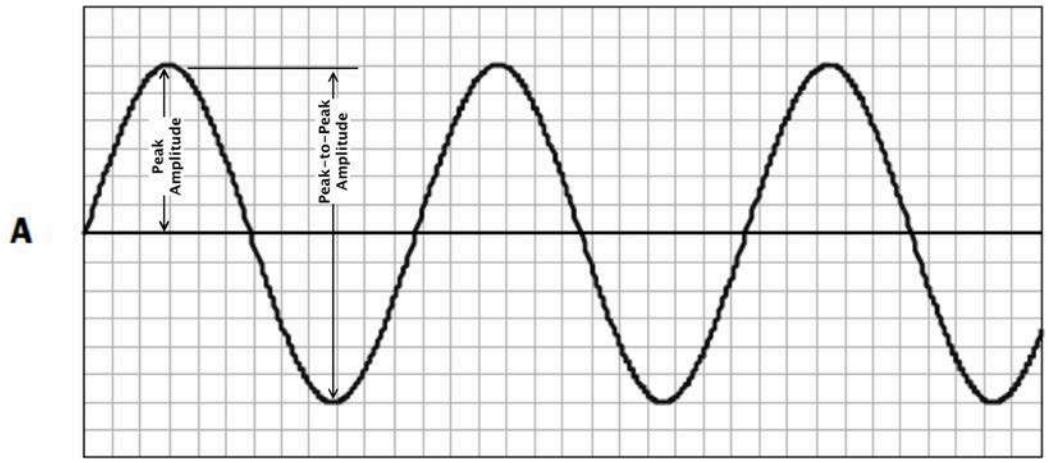
Sugg. Points	Q #	**Suggested answer.** [*Additional material, not called for by the nature of the question, or comments directed to the instructor, ar shown in italics.]*
	9	
1	9a	Slower from A to B than from B to C.
1	9b	Slower from B to C than from C to D.
1	9c	Slower from C to D than from D to E.
1	10a	supersonic
1	10b	infrasonic
1	10c	subsonic
1	10d	Mach 1
2	11	Normal atmospheric air pressure pushes the liquid up the straw.
	12	*[This question refers to material in Refresher B. It assumes the knowledge that pressure within the middle ear is equivalent to atmospheric pressure – the Instructor may wish to provide this information ahead of time depending on the background of the class members.]*
1	12a	101.3 kPa
1	12b	1 atmosphere
1	12c	14.7 pounds per square inch
	13	*[This problem relies on the knowledge that the upward pressure on the bottom of the table is equal to the downward pressure on the top: Refresher B]*
2	13	Metric version
		area of table: $0.750m \times 0.750m = 0.5625m^2$ pressure: $0.5625\ m^2 \times 10{,}332.3\ \frac{kg}{m^2} = 5811.9\ kilograms$
	13	Imperial version *[note that metric and Imperial versions are NOT equivalent]*

Sugg. Points	Q #	**Suggested answer.** [*Additional material, not called for by the nature of the question, or comments directed to the instructor, are shown in italics.]*
		area of table: $$2ft \times 2ft = 4\ sq.ft.$$ conversion: $$4\ sq.ft. \times 144\ \frac{sq.in.}{sq.ft.} = 576\ sq.in.$$ pressure: $$576\ sq.in. \times 14.7\ \frac{pounds}{sq.in} = 8467.2\ pounds$$

Chapter 3

1. Erratum

In the first printing, Figure 3.12 is missing its labels. Part A should appear as follows:



2. Suggested expansion

Section 3-9.1 makes the distinction betwee *pressure* (as, for instance, a measure peak amplitude) and *sound pressure*. However, it might be useful to make this point when students reach Section 3-5. In particular, the fact that sound pressure is 0.707 times the peak amplitude in a sine wave.

3.Questions & Problems, pp 52-53

A note on Question 1:

In part (b), question 1 asks how each of the basic units and dimensions might be measured or calculated. These are in fact quite different concepts in some cases.

For example, for the question of *speed of propagation*, if the question interpreted as simply "how might you calculate it?" then the student can reasonably answer "$c = \lambda \times f$" (based on Formula 3-5). However, that is not a reasonable answer to the question if it is interpreted to mean, "how might a scientist measure speed of propagation?" Wavelength is not typically measured directly (and may not even be possible in some media), but rather is calculated on the basis of a measure of speech of propagation and of frequency. Thus the response above is circular.