College Physics: for the AP® Physics 1 Course

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Errata Sheet*

Student Textbook

Page 52. Question 6. The units of acceleration on the *y*-axis of the problem are given as $(m/s)^2$ rather than m/s^2.

Page 82. In the directions at the top of the page it says, "For Questions #1 and #2". This should be revised to say, "For Question #1".

Page 184. AP® Group Work. Part (d) should be revised to "Qualitatively predict the response of the system in the stationary reference frame of the horizontal surface." Part (e) should be revised to "Would it be valid to use Newton's second law to calculate the acceleration of the blocks in the reference frame of the supporting structure? Why or why not?"

Page 193. Reasoning Skill Builders, question 5. The word "counterclockwise" should be revised to "clockwise" so that the sentence reads "The force is directed at a clockwise angle θ relative to the horizontal."

Page 214. AP® Skills in Action, question 10 (b). The final word should be revised to "decreases" so that the final sentence reads "Predict the factor by which the terminal speed decreases."

Page 282. Calculating Work Done by Multiple forces. The second line of the equation was missing the variable "d" in front of both cos(90°). The equation should be revised to $= F_T d\cos\theta_T + F_g d\cos(90^\circ) + F_n d\cos(90^\circ) + (-F_k d)$

Page 340. Question 3. The word "gravitational" should be removed from the second to last sentence, so that it reads "Express the final potential energy of the block-spring-Earth system […]"

Page 341. For #6 of the Reasoning Skill Builders, part e it says "27°" but it should be revised to say "7°".

Page 542. Question 4 (a). The date "8/6/2004 (the 218th day)" should be revised to "6/8/2004 (the 160th day)".

Page 546. Question 2. The first sentence, which states "An event occurs repeatedly every day." should be revised to "An event occurs at the same time every day."

Page 561. Question 2. The SI units of meters and seconds should be used for this problem, so that the equation reads " $x = (0.06\text{ m})\cos(3pt + p/2)$, where t t is in seconds. "

Page 574. Takeaway for Section 12-6, Problem 5c. Make the following corrections (see crossed out text and new text in red): "energy of a simple pendulum is constant for any initial angular displacement of the pendulum."

Page 575. In the equation for $g_{\text{spherical earth}}$ the units should be changed from 9.830 N/m to 9.830 N/kg.

Page 585. Question 18. Additional information of "and the same length as the original bar" should be added to the end of the sentence so that it reads "[…] with a thin uniform rod that had the same mass as the original ball (and no ball) and the same length as the original bar?"

Page 604. Question 1 (a). The word "minimum" should be revised to "maximum" so that the questions reads "[…] what is the maximum wave speed?"

Page 652. Question 4. The words “left” and “right” should be switched in the question stem so that the sentence reads “In contact between a pair of materials, the material on the right in the following list is observed to receive negative charges from the material on the left.”

Page 659. In both the question stem and in part b of Problem 6, “1-nC” should be revised to “1.00 nC”.

Page 666. Question 8 (d). This incorrectly suggests that there is a negative 0.200 m solution. This should be removed so that part d reads “Justify the claims that the field is zero at the points x = 0.200 m.”

Page 680. The Takeaway Practice, question 1 (a). The question should be revised to read “Express the change in electric potential V_q experienced by a point charge moved from infinity to the origin if the other three point charges are already in place.”

Page 680. The Takeaway Practice, question 2. The word “energy” should be removed from the sentence so that it reads “Explain why an electron will accelerate toward a region of higher electric potential and not lower electric potential.”

Page 704. Page 704 is incorrectly numbered as Page 702. Note sequence of pages is currently …702, 703, 702, 705… The second “702” is actually Page 704.

Page 709. The page number for **radiate** is incorrectly indicated as 702. It should be Page 704.

G12 (Glossary). For the entry **radiate**, change page number from 702 to 704.

ANS10. Chapter 2 Review Problem #31. Answer is $v_{average,\,x}$ = 12.0 m/s (rather than 10.4 m/s, as reported in the printed book). The complete solution is as follow:

We know $v_{\text{average},x} = \dfrac{\Delta x}{\Delta t}$, and we know the distance $\Delta x = 1000\text{ m} - 750\text{ m} = 250\text{ m}$, so all we need to know is time for the last portion.

For the entire race

$$v_{\text{average},x} = \frac{\Delta x}{\Delta t} \Rightarrow \Delta t = \frac{\Delta x}{v_{\text{averge},x}} = \frac{1000\text{ m}}{8.00\text{ m/s}} = 125\text{ s.}$$

For the completed portion of the race

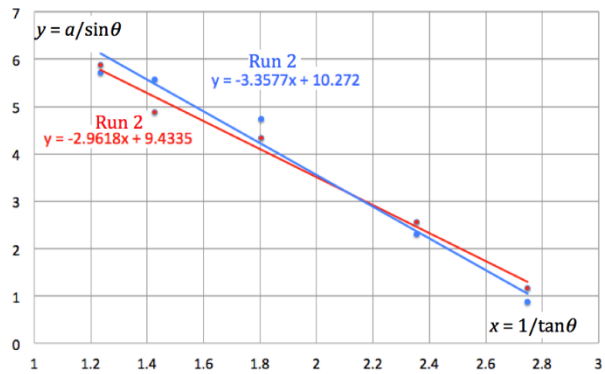
$$v_{\text{average},x} = \frac{\Delta x}{\Delta t} \Rightarrow \Delta t = \frac{\Delta x}{v_{\text{averge},x}} = \frac{750\text{ m}}{7.20\text{ m/s}} = 104\text{ s.}$$

The remaining time is then

$$\Delta t = 125\text{ s} - 104\text{ s} = 21\text{ s} \Rightarrow v_{\text{average},x} = \frac{\Delta x}{\Delta t} = \frac{250\text{ m}}{21\text{ s}}$$

$$= 12.0\text{ m/s}$$

ANS 27. The graph was incorrectly rendered in the 2nd printing. Below is the correct version of the graph.



ANS37. Review Problem #3. The answer for acceleration a is 5300 m/s^2 (rather than 3000 m/s^2, as reported in the printed book)

ANS60. Section 10-1, Question 1. The correct solution is as follows:

d. If the wheel does not slip over the surface, then the distance that a point on the rim travels is the same as the distance that the hub travels. If the rim were a ribbon that unrolled as the wheel turns the length of one rotation (2π meters), then the ribbon would now be stretched between the first and last view shown. So the average translational speed of the wheel rim is 2π m / 1/2 s = 4π m/s. The translational speed of the hub is therefore 4π m/s.

ANS60. Section 10-3, Question 3. Incorrect distances were used in the original solution. The correct solution and answer are as follows: $I = \sum_i m_i x_i^2 = 0.010$ kg (1 m)^2 + 0.015 kg (3 m)^2 + 0.020 kg (6 m)^2 = 0.865 kg m^2 ≈ 0.9 kg m^2

ANS69. Chapter 11 Review Problems. Question 5. Replace current explanation of the answer with the following:

Define the system to be the glob plus the turntable. Because the glob falls straight down no torque is exerted by the collision of the glob and the turntable about the rotational axis. Also because of its direction of motion, the glob has no angular momentum about the rotational axis before it hits the turntable. Because there is no external torque, angular momentum of the system is constant. The mass distribution of the rotating system changes and its rotational inertia increases. The angular speed decreases by the ratio of the initial and final rotational inertias because angular momentum is constant. While the angular speed of the disk is decreasing, the magnitude of its angular acceleration increases, because it had no acceleration before. This is not at conflict with the fact that there is no torque on the system. The disk has to speed up the glob, so there are internal torques between the glob and the disk during the time in which the glob and disk come to their new rotational speed. Because the kinetic energy is proportional to the square of the angular momentum divided by the rotational inertia, the numerator in the expression for the rotational kinetic energy remains constant but the denominator increases. Therefore, the kinetic energy of the system is decreased. The internal energy increases by the same amount that the kinetic energy decreases. This addition to the internal energy involves the cohesion of the glob to the surface of the disk.

ANS80. Question 7 (b). The equation "$t = t_0 + w/4v_p$" should be revised to "$t = t_0 + w/2v_p$" wherein the 4 is replaced by a 2.

ANS81. Question 5 (a). The first sentence reads "The algorithm adds a phase of π /2 […]". This should be revised to "The algorithm adds a phase of π […]" wherein "/2" has been removed.

Page I11 (Index). The page number for Radiate should be 704 rather than 702.

Back Inside Cover. The value for the radius of Earth should be revised from 6.38×10^6 m to 6.37×10^6 m

Back Inside Cover. The value for the mass of Earth should be revised from 5.98×10^{24} m to 5.97×10^{24} m

*As of 31, March 2022

This errata listing includes all errors found since the 2nd printing of the text. Depending on the printing you have some of these corrections may already have been made.

If you've found an error and it is not listed here, please contact your BFW representative.
