

## CORRECTIONS TO 7<sup>th</sup> EDITION

### PRINT BOOK

In the table of contents, chapter 22 should be marked as Higher Level material (line on the side)

**Page 71** Add to Key Point box at the end: This is provided that no internal energy is converted into mechanical work as in the case of an explosion for example where chemical energy gets converted to mechanical energy.

**Page 71** Paragraph: In the absence of external forces ..... conserved.

Replace by

In the absence of external forces doing work **and internal energy being converted to mechanical energy**, the total mechanical energy will be conserved.

### Page 95

Charter A4 Linear momentum

Question 15 The figure should say it refers to question 15 NOT 14

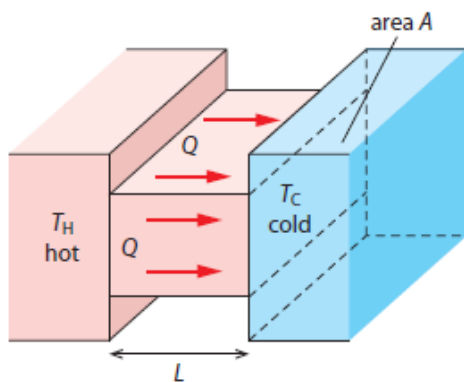
Question 16 The figure should say it refers to question 16 NOT 15

Question 20 The figure should say it refers to question 20 NOT 19

**Page 145** Above Fig. 6.27. The equation should say  $ct = \gamma(ct' + \frac{v}{c}x')$ .

**Page 163** Worked example 7.4 Answer is  $12^\circ$  not  $14^\circ$ .

**Page 168** Figure 7.10 The correct area  $A$  is the one shown here (dotted rectangle).



**Page 178** Table 8.1 The listed emissivities are for UV light. For IR radiation the emissivity of ice is about 0.8.

**Page 257** Chapter 11 Current and circuits Check yourself question 7. In the answer it should say: The total resistance is  $3.0 \Omega$  ... The answers are unaffected.

**Page 284** Problem 37 It should say: The total energy of a body executing SHM is 18 J. The amplitude of oscillations is 12 cm. What is the potential energy of the body when the displacement is 8.0 cm?

**Page 446** Figure on left: the horizontal coordinates  $\frac{1}{2}, 1, \frac{3}{2}, 2$  should be  $\frac{\pi}{2}, \pi, \frac{3\pi}{2}, 2\pi$

**Page 517** Under heading Main sequence stars

7<sup>th</sup> line

Replace **radiation pressure** with **thermal/radiation pressure**

And similarly in key point box

Page 522 Under figure 25.9 The delicate balance between **radiation** and gravitational pressure ..... Replace radiation by **thermal**.

## ANSWERS TO END OF CHAPTER PROBLEMS

Problem 5b in chapter A6: minus sign in red missing, answer should be

$$u' = u - v = -15 - (-25) = +10 \text{ m s}^{-1}$$

Problem 51 in chapter 11

51 a The total resistance of the circuit would decrease, thus the reading of the ammeter would increase. The voltmeter reads  $V = \mathcal{E} - Ir$  and since the current **increases**,  $V$  will **decrease**.

b The current would still **increase**. The voltmeter would read the emf before and after the closing of the switch so there would be no change.

## DIGITAL EDITION OF BOOK

### Chapter on Units and Measurement (this is only digital, no print version)

#### Page 2

Physical quantities other than those given previously have units that are combinations of the seven fundamental units. They have **derived** units. For example, speed has units of distance over time, metres per second (i.e. m/s or, preferably,  $\text{m s}^{-1}$ ). Acceleration has units of metres per second squared (i.e.  $\text{m/s}^2$ , which we write as  $\text{m s}^{-2}$ ). Similarly, the unit of force is the newton (N). It equals the combination  $\text{kg m s}^{-2}$ . Energy, a very important quantity in physics, has the joule (J) as its unit. The joule is the combination  $\text{N m}$  and so equals  $(\text{kg m s}^{-2} \text{ m})$ , or  $\text{kg m}^2 \text{ s}^{-2}$ .

What is marked **RED** should be  $\text{m}^2$  not m2

#### Page 5 Example 1.5.

$0.5 \times 10^4$  should be  $0.5 \times 10^3$ .

#### Page 11 Figure 6.

Truevalue should be True value (4 times)

#### Page 21

##### Multiplication of a vector by a number

A vector can be multiplied by a number. The vector ***a*** multiplied by the positive number 2 gives a vector in the same direction as ***a*** but 2 times longer.

Letter in red should italic boldface ***a***

Page numbers are for the **PRINT** edition

#### Chapter A1

p. 9 Right column first line. Is the font too small for the first equation?

p. 16 Graphs of motion: sentence is broken onto next line

p. 22 Equation above Exam Tip: the equation is  $v_y^2 = u_y^2 - 2gy$ , subscript is y not x.

#### Chapter A3

p. 65 Example 3.6 122 should be  $12^2$

#### Chapter A5

p. 103 First table: under angular quantity third line Greek alpha not latin a

- p. 103 Subscripts in table should match print version (print version correct) i and f not 1 and 2
- p.112 Worked example 5.8 Towards end Because the cylinder is rolls without .....  $v = \omega R$  or  $\omega = \frac{v}{R}$  not  $D$  in denominator
- p. 120 Table, right column, last line  $E_K = \frac{L^2}{2I}$ , denominator is  $I$  not  $l$ .

## Chapter A6

- p. 130 Table and legend:  $y \rightarrow \gamma$
- p. 135 Worked example 6.6  $y \rightarrow \gamma$
- p. 136 Length contraction  $y \rightarrow \gamma$
- p. 143 Right column  $\tan\theta = \frac{x}{ct} = \frac{v}{c}$ ,  $v$  not  $y$

## Chapter B7

- p.173 Worked example 7.11  $1 \text{ ly} = 9.46 \times 10^{15}$ . The 15 is an exponent.

## Chapter B8

- p.181 Top left column:  $\pi$  twice is the wrong font compared to what is in the equation below.

## Chapter B9

- p.189 In key point the unit  $\text{g mol}^{-1}$  should not split over a second line.

## Chapter B10

- p.209 Key point: No space between  $\Delta$  and  $V$

## Chapter C12

- p.266 The print book uses one font. Here we have Times Roman (?) and Arial (?) which is confusing: for example  $a = -\sqrt{\frac{k}{m}}x$  and  $a = -\omega^2 x$ . The  $a$ 's do not match and neither do the  $x$ 's.
- p.273 Again many places the fonts are mixed. This is confusing.
- p.274 Same thing on this page. Discrepancy in the graph 12.20.
- p.276 Same thing on this page. Discrepancy in problem 18 and 20.
- p.281 Same thing on this page.

p.283 Correction given separately to PRINT version for problem 37 which is garbled.

### Chapter D17

p.362 After Fig. 17.4 Fonts again: x is in Arial in text and Times Roman in equations

p. 364 Fonts again. Under Kepler's third law. .... (the length *a* in Figure 17.7 ...) should be Times Roman.  
Ans the same under the equation

p. 364 Same in Worked example 17.5 Since aphelion + perihelion distance = 2 *a* ....

p. 375 Fonts. Worked example 17.11 *v* is Arial in text Times Roman in equations.

p. 382 Question 40 part f (ii):  $\frac{\Delta T}{\Delta t} = 72 \mu s \text{ yr}^{-1}$  spacing of units no space between  $\mu$  and s.  $\mu$  not italics

### Chapter D18

p. 387 Fonts again: x is in Arial in text and Times Roman in equations

p. 400 Worked example 18.7. Very last term in equation: s not in italics:  $\text{kg s}^{-2} \text{ A}^{-1}$

### Chapter D19

p.423 Exam tip: the equation is  $W = F_s \cos \theta$  NOT  $W = F_s \cos \theta$

### Chapter E21

p. 460 Problem 22 part e:  $\frac{dE}{dL} = \frac{mk^2 e^4}{L^3}$ , italics for terms in red

### Chapter E22

p. 480 Table 23.1, second column second line for anti-proton: lower case p:  $-\frac{1}{2} \bar{p}$ .

### Chapter E23

p. 499 probability =  $\lambda dt$  (this is valid provided  $\lambda dt$  is smaller than one): There should be NO subscript *d* on  $\lambda$

### Chapter E25

p. 517 Under heading Main sequence stars; The outflow of energy from the core ..... creates an outward *radiation* pressure that ..... Replace radiation by *thermal/radiation* pressure.

## **ANSWERS TO PROBLEMS**

Topic A Multiple Choice Questions: Answer to question 89 is **C**.

Topic B Multiple Choice Questions: Answer to question 61 is **A**.

## END OF CHAPTER MULTIPLE CHOICE TESTS

Quiz A1.1. Kinematics

Repeated text in red: Cars X and Y start from the same place. They are both travelling to a destination 480 km away. ~~and will travel to a destination that is 480 km away.~~

Question 5: Answer is C

Question 6: Answer is A

Question 8: Answer is A