

Errata for *The Manga Guide to Physics* (updated to 13th printing)

Page 74: In the middle of the page, Ryota should now say: “You can find acceleration by calculating the change in velocity over time.”

Page 85: In the v-t graph, the area of the rectangle should now be represented by v_1t .

Page 143: The section “Elastic and Inelastic Collision” is not meant to imply that momentum conservation can only be applied to perfectly elastic or inelastic collisions. The conservation of momentum holds for all collisions. A perfectly inelastic or elastic collision simply makes our calculations simpler.

It can be difficult to solve conservation of momentum problems if both final velocities are unknown. However, if you know one final velocity or know the objects stick together (perfectly inelastic collision), you can solve for the other final velocity.

Page 144: The symbols for angles in the introduction to this section should now be θ (theta) and φ (phi), not q and f .

Page 146: The first sentence in the second to last paragraph should now read, “A derivative of zero means that the momentum does not change.”

Page 165: In the last frame, Ryota should now say, “Yes, the potential energy of a particular height transforms into kinetic energy in a falling object.”

Page 181: Several instances of “break” and “breaking” should now appear as “brake” and “braking” on this page.

Page 192: In the fourth equation, we are expanding the right side of the third equation.

Page 203: Since the spring expands by x to reach its natural length, the integral should now be from $-x$ to 0 , not 0 to x .

Page 210: The text equation underneath:

$$F_{\text{net}} = Mg - mg \sin \theta - \mu mg \cos \theta$$

should now read:

net force = weight of M - component force of gravity - force of friction