Differential Equations: Techniques, Theory, and Applications

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Errata.

In Fig. 1.11, page 13, the caption should read: $\frac{dy}{dt} = 0.2y - 0.005y^2$ and the horizontal axes should be labeled t, not x.

Exercise 20(f) in Section 2.6.2, page 109: Replace "$y = k$" by "$P = k$".

Exercise 5 in Section 3.3.1, page 167: Change $(x_0, y_0) = (0, 3)$ to $(t_0, P_0) = (0, 3)$ and change (x_k, y_k) to (t_k, P_k).

Exercise 39 in Section 4.5.4, page 240: The last sentence of this problem should start "In other words..."

Exercise 18 in Section 6.7.1, page 376: Part (b) of this exercise should read as follows: The solution $y(t)$ that you found in (a) depends on the positive parameter h as well as t. To emphasize this denote it by $y_h(t)$. Calculate $\lim_{h\to 0} y_h(t)$. Hint: This is easy when $t = 0$. For $t > 0$, argue that it suffices to find

$$\lim_{h\to 0} \frac{\cos(t-h) - \cos t}{h}.$$

If you use l'Hôpital's rule for this limit, keep in mind that the variable is h and t is held constant.

Exercise 30(d) in Section 7.3.1, page 408: $I = \pi(r_0^4/4 - r_i^4/4)$.

Exercise 6 in Section 10.5.1, page 681: The values of b_1 and b_2 should be interchanged (so that $b_1 >> b_2$) as should the values of a_1 and a_2. Thus $b_1 = \frac{1}{10}$, $b_2 = \frac{1}{50}$, $a_1 = \frac{1}{25{,}000}$, and $a_2 = \frac{1}{5{,}000}$. Remark: With these changes, the answers in (a), (b), and (c) change as follows: The coordinates of the equilibrium point asked for in (a) should be interchanged. The answers to (b) and (c) should be interchanged, and the coordinates of each equilibrium point should be interchanged as well.

Selected answer to Exercise 21(d) in Section 2.6, page 840: Interchange the classifications "unstable" and "stable".

Selected answer to Exercise 7(b) in Section 3.2, page 841: Replace $y(0.5) \approx y_5 = 1.386565$ with $y(0.5) \approx y_2 = 1.386565$.

Selected answer to Exercise 9 in Section 3.2, page 841: Replace 0.06931473747 with 0.6931473747.