These are some of the errors/typos we have found in the book:

p.50, 4th line from bottom: \( \theta, 264.6 \).

p.53, Example 1.22: “... a sample of 100 ...” should be 25.

p.121, Either \( s_e = \sqrt{\frac{SS Resid}{n-2}} \) or \( s^2 = \frac{SS Resid}{n-2} \).

p.168: \[ n = \frac{1}{\left( \frac{B}{1.96 \sigma} \right)^2 + \frac{1}{N}} \]

p.171: \( S_p \sim \ldots \) check lecture notes.

p.352: See next page, below.

p.506, blue box: “... \( H_a: \beta \neq 0 \) (linear association ...)

\[ \text{no}\ "\alpha". \]

p.534, problem 11.31 should refer to 3.34 (not 3.32)
p.535, 11.32 \( \ldots \) 3.36 (not 3.34)
Values of \( z \) at least as contradictory to \( H_0 \) as this are those even smaller than \(-6.17\) (those resulting from \( x \) values that are even farther below 15 than 11.3). Thus

\[
P\text{-value} = P(z < -6.17 \text{ when } H_0 \text{ is true}) = \text{area under the standard normal (z) curve to the left of } -6.17 = 0
\]

There is virtually no chance of seeing a \( z \) value this extreme as a result of chance variation alone when \( H_0 \) is true. If a significance level of .01 is used, then

\[
P\text{-value} \approx 0 \leq .01 = \alpha
\]

so the null hypothesis should be rejected. Because the \( P\)-value is so small, the null hypothesis would in fact be rejected at any reasonable significance level, even .001 or smaller. The data is much more consistent with the conclusion that true average intake is in fact smaller than the RDA.

Let \( \mu_0 \) denote the value of \( \mu \) asserted by the null hypothesis (\( \mu_0 = 15 \) in Example 8.4). The test statistic for testing hypotheses about \( \mu \) when the sample size \( n \) is large is

\[
z = \frac{x - \mu_0}{s/\sqrt{n}}
\]

When \( H_0 \) is true, this test statistic will have approximately a standard normal distribution (this will be true for any test statistic labeled \( z \) in this book). The \( P\)-value is then a \( z \)-curve area that depends on the inequality in

\[
\text{Inequality in } H_0 \quad \rightarrow \quad H_\alpha \quad \rightarrow \quad \text{P-value}
\]

- \( > \) Area to the right of the calculated \( z \) Upper-tailed
- \( < \) Area to the left of the calculated \( z \) Lower-tailed
- \( \neq \) 2(tail area captured by calculated \( z \)) Two-tailed

These three cases are illustrated in Figure 8.2.

As an example of the latter case, suppose that we are testing

\[
H_0: \mu = .5 \quad \text{versus} \quad H_\alpha: \mu \neq .5
\]

where \( \mu \) denotes true average bearing diameter. The large-sample test statistic is

\[
z = \frac{x - .5}{s/\sqrt{n}}
\]

In this situation, values of \( x \) either much larger or much smaller than .5, corresponding to \( z \) values far from zero in either direction, are inconsistent with \( H_0 \) and give support to \( H_\alpha \). If, for example, \( z = -2.76 \), then

\[
P\text{-value} = P(\text{observing a } z \text{ value at least as contradictory to } H_0 \text{ as } -2.76 \text{ when } H_0 \text{ is true})
\]
Typos in the solution:

1.11 6: (page 584): 0.489, 0.362; not 0.149.

1.25 6: 0 < 50 8 not 7
50 < 100 13 not 14.

1.19 6: 8 d. 4.2 (not 5.8)

1.37: 6. 0.6892, 7 c. 39.96

2.9: c. 0.666, 0.707

2.65: a. 0.933 b. 0.6086

5.11: 5 (.01) = 0.05 not 0.
5.5 \( a \) \quad = \quad 0.004 \quad + \quad 0.594 \quad = \quad 0.598 \quad \text{ or } 59.8\% \\

b) \quad = \quad 0.594 \div 0.598 \quad = \quad 0.993 \quad \text{ or } 99.3\%

5.51 \quad \text{ C. 28.71 hours}

7.33 \quad 5.882, \quad \text{Yes.}

8.1 \quad f. \quad \text{No.}

8.73 \quad t = -1.8, \ldots, \quad \text{P-value} = 0.073

8.79 \quad z = \frac{\bar{y} - \mu}{\sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}}