ERRATA/ADDENDA: "INTRODUCTION TO ABSTRACT ALGEBRA," J.D.H. SMITH

Lines 2 + 2 to 4: We can also write $y > x$ ("y greater than x") instead of $x < y$, or $y \geq x$ ("y greater than or equal to x") instead of $x \leq y$.
Line 20 − 10: less than or equal to $\sqrt{n}$.
Line 20 − 3: $\gcd(a, b)$
Line 68 + 11: but $\sqrt{2} \cdot \sqrt{2} = 2$ is
Line 72 − 8:

$$(v_2v_1)(u_1u_2) = v_2v_1u_1u_2 = v_2eu_2 = v_2u_2 = e\,, \qquad (4.9)$$

Line 73 − 2: describing
Line 74 − 2: (e_X, e_Y)
Line 132 + 1: and for $n \geq m - 1$, define
Line 134 − 13: Let y be an element of a unital ring $(R, +, \cdot)$. Continuing to write u for the identity element of R, and considering an integer m, Corollary 6.14 yields

$$(mu)y = m(uy) = my \qquad (6.12)$$

on setting $n = 1$ and $x = u$. Similarly, for an element x of R and an integer n, we get

$$x(nu) = n(xu) = nx\,. \qquad (6.13)$$

Line 137 - 13:

$$J = \{x \text{ in } R \mid f(x) = 0\}$$

Line 137 − 10: Indeed, for j in J and x in R,
Line 140 + 5: *an ideal*
Line 140 − 6: Exercise 35
Line 143 − 8: condition $i + j = h$.
Line 145 + 12: with $\theta_c(X) = c$ and $\theta_c(r) = \theta(r)$ for r in R. If
Line 154 − 7: Skip (i) if the book has a 13-digit ISBN.
Line 162 + 8: $(R^\times, \cdot, 1)$
Line 164 − 16:

$$d(X) = b_mX^m + \cdots + b_1X + b_0$$

Line 164 − 15: $b_m \neq 0$.
Line 166 − 9: have degree 0, and

Line 167 − 15:

$$S = \{\deg f(X) \mid 0 \neq f(X) \text{ in } J\}$$

Line 171 + 5:

$$p(-a_1^{-1}a_0) = \big(a_1 \cdot (-a_1^{-1}a_0) + a_0\big) \cdot b(-a_1^{-1}a_0) = 0\,,$$

Line 171 + 9: (**An irreducible cubic.**)
Lines 183 − 1, 184 + 1: in $\mathbb{Z}/_2[X]\big/(X^3 + X + 1)\mathbb{Z}/_2[X]$.
Line 190 − 14: Thus a_{n-1} is
Line 192 + 10: and $p_1 = u_1 q_1$ for some unit u_1.
Line 196 + 6: $Df(X)$
Lines 202 + 8 to + 16: Replace the proof of Proposition 8.31 as follows:

PROOF If d_y does not divide d_x, the Fundamental Theorem of Arithmetic gives factorizations into powers of distinct primes

$$p_1, \dots, p_r, q_1, \dots, q_s$$

of the form

$$d_x = p_1^{e_1} \dots p_r^{e_r} q_1^{f_1} \dots q_s^{f_s} \text{ and } d_y = p_1^{g_1} \dots p_r^{g_r} q_1^{h_1} \dots q_s^{h_s}$$

with $e_i \geq g_i \geq 0$ for $1 \leq i \leq r$ and $h_j > f_j \geq 0$ for $1 \leq j \leq s$. Set

$$k = q_1^{f_1} \dots q_s^{f_s},\ x^k = u \text{ and } l = p_1^{g_1} \dots p_r^{g_r},\ y^l = v,$$

so $d_u = p_1^{e_1} \dots p_r^{e_r}$ and $d_v = q_1^{h_1} \dots q_s^{h_s}$. Since $\gcd(d_u, d_v) = 1$, the Chinese Remainder Theorem yields the contradiction $d_{uv} = d_u d_v = p_1^{e_1} \dots p_r^{e_r} q_1^{h_1} \dots q_s^{h_s} > d_x$. []

Line 206 − 8, − 7: Let D be an integral domain. Show that Condition (a) below is necessary for (b):
Line 207 − 1: $\{x + y\sqrt{5} \mid x, y \text{ in } \mathbb{Q}\}$
Line 220 + 3: $\Lambda\colon R \to \mathrm{End}(R, +, 0); r \mapsto \lambda_r$
Line 227 + 10: $f\colon A \to B$
Line 276 + 3: $= \{(h, h) \mid h \text{ in } H \cap P\}$
Line 280 + 10: $\lambda_u\colon M \to M; m \mapsto u \cdot m$
Line 288 + 26: $(0 \circ 4) \circ 8 = 2 \circ 8 = 5 \neq 3 = 0 \circ 6 = 0 \circ (4 \circ 8)$,
Line 303 + 12: *is again a quasigroup homotopy.*