

**ERRATA: “POST-MODERN ALGEBRA,”
SMITH & ROMANOWSKA**

Line 3–12: iff there is a basis D of W extending $f(B)$ such that

Line 10+7: $\Sigma\langle A_i \mid i \in I \rangle$

Line 10+8: $\bigcup\{\{i\} \times A_i \mid i \in I\}$

Line 10+10: $\iota_i p = p_i$

Line 10+11: $\Pi\langle A_i \mid i \in I \rangle$

Line 14+14: $|f_n(x) - f_m(x)|$

Line 20+5: Define $\langle X \rangle = \bigcup_{n \in \mathbb{N}} X^n$.

Line 21+3: subset C of A^+ is a *code*

Line 26+4: $A^2 = \alpha_1 \circ \alpha_2$

Line 26–16ff: Let $\alpha_1, \alpha_2, \alpha_3$ be equivalence relations on a set A .

Define $\beta_i = \alpha_j \cap \alpha_k$ for $\{i, j, k\} = \{1, 2, 3\}$. Suppose that the set $\{\alpha_i, \beta_i \mid 1 \leq i \leq 3\}$ is permutable, with $\alpha_i \circ \beta_i = A^2$ for $1 \leq i \leq 3$. If $\alpha_1 \cap \alpha_2 \cap \alpha_3 = \hat{A}$, show that A is the direct product $A^{\alpha_1} \times A^{\alpha_2} \times A^{\alpha_3}$.

Line 30–14: Exercise 1A

Line 31+10: operations $m_{A \cup B} =$

Line 31–15: $\prod_{1 \leq i \leq 2} (A_i, M)$

Line 33+12: $\chi : A \rightarrow 2^M; x \mapsto L_x^{-1}(B)$

Page 35, diagram: Reverse the direction of the arrow between h_1 and h_0

Line 39+2: $\langle T \rangle; m \mapsto (m, m)$.

Line 40+15: $\iota_b p = p_b$

Line 44–13: $(G, H^{\text{OP}}) \cong \sum_{H \setminus G} (H, H^{\text{OP}})$

Line 46–3: A set map $f : X \rightarrow M$

Line 49+17: homomorphism

Line 57+11: $\text{Mlt}(Q, \cdot)$

Line 58+4: writing e.g. (A, B, C, V)

Line 58+20:

$$T = \prod_i (x_i, x_i T, \dots, x_i T^{n_i-1})$$

Line 58–4:

$$(C \xrightarrow{L(C)} C \xrightarrow{L(V)} V \xrightarrow{L(C)} B \xrightarrow{L(V)} C)$$

Line 62–14: 2.2E.

Line 64–8: and $(X, H) \uparrow_H^G \cup (Y, H) \uparrow_H^G$ are

Line 68+18:

$$(X \cup X^J)^* \xrightarrow{R} XG \xrightarrow{p} \mathbb{Z}_2$$

Line 71+6: $p^m = 1 + \sum_{i=2}^s |t_i G_e|$,

Line 73+10:

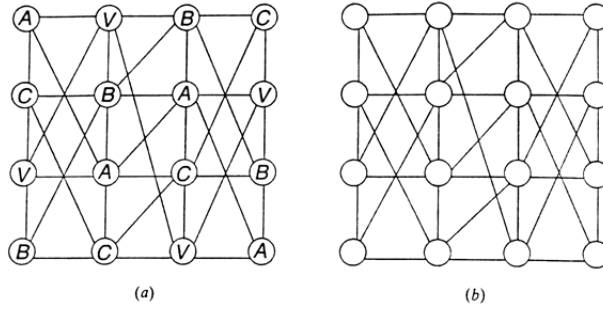
$$x \overset{\alpha}{-} y$$

Line 85-6: $= \frac{1}{2}n \cdot (n-1)! = \frac{1}{2}n! =$

Line 87-6: $x \setminus y = e \cdot ((x/(e \setminus e)) \setminus y)$

Line 88+8: Let $(N, \langle \alpha_i \mid 1 \leq i \leq k \rangle)$ be a k -net.

Page 89: Figure 1.2(b) should have the same diagonal lines as Figure 1.2(a).

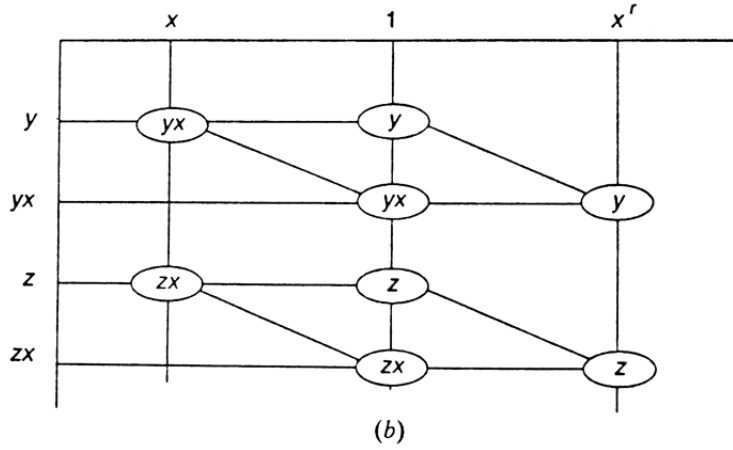
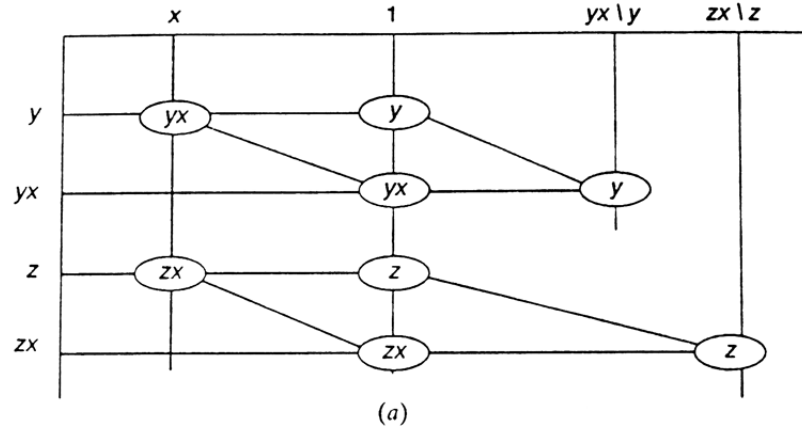


Line 91-12: $(Q, \cdot, /, \setminus) \rightarrow (Q, \cdot, /, \setminus)$ from Q

Line 93+14:

$$I = \begin{bmatrix} 1 & \mathbf{0} \\ \mathbf{0} & 1 \end{bmatrix}.$$

Page 97: Add diagonal lines connecting the following pairs of ellipses in each of (a), (b) of Figure 1.3: yx, y, zx, z .



Page 98: Should be $x(z y \cdot z)$ in the ellipse at row x , column $z y \cdot z$.

Line 101+6: Define $x \cdot y = x = x/y$ for

Line 103-10: Show that $(Q, /, \cdot)$

Line 118-14: if $y = x$ then a else 0

Line 121-6:

$$\rho_T = \sum_{i=1}^n \pi_i l_{iT} \in \text{End } \bigoplus_{i=1}^n A.$$

Line 127+16: non-trivial unital ring

Line 128-6: $l_i \in L \} \triangleleft S$.

Line 128-4: (c) For distinct $K, L \in \text{Spec}(\mathbb{Z})$,

Line 129+2: If S is unital, nontrivial and

Line 140+3: $\subseteq S_1^l \Rightarrow xA = b \Rightarrow xA_0 = xAE = bE = b_0$

Line 143+5: for some $0 \leq r \leq \min\{l, m\}$ and

Line 143+12ff: Otherwise, one may pick x_{r+1}, \dots, x_l to be arbitrary members of the field S (so the system is under-determined if $r < l$), and then use the first r equations of the reduced system to obtain x_1, \dots, x_r in terms of b'_1, \dots, b'_r and possibly x_{r+1}, \dots, x_l .

Page 147, (2.3.6):

$$\begin{array}{ccc} I & \xrightarrow{f} & V \\ \theta \downarrow & & \downarrow \tilde{\theta} \\ W & \xlongequal{\quad} & W \end{array}$$

Line 150–1: $T : h \mapsto (Th : (v_1, \dots, v_n) \mapsto h(v_{1T}, \dots, v_{nT}))$

Line 151+13:

$$h \mapsto \left(\sum_{i=1}^n \theta \right) h.$$

Line 151–5:

$$= k \det \left(\sum_{j_1=1}^n f_{1j_1} E_{1n}^{1j_1}, \dots \right)$$

Line 162+17ff: 3B. Let A be a nontrivial K -module. Let M be the subset of $K(A, A; A)$ consisting of those bilinear maps $m : A \times A \rightarrow A$ for which $(A_K, m, 1)$ is a K -algebra. Show that M is not a submodule of $K(A, A; A)$.

Line 163+7: $T\bar{\theta} = T\theta$.

Line 163–3: is a submonoid of the monoid $(\mathbb{R}[T_1, \dots, T_n], \cdot, 1)$.

Line 164–13: under the action $M \times A \times K \rightarrow M \times A; (m, a, k) \mapsto (m, ak)$,

Line 169–15: Since a is

Line 170+7: coset $f(T) + d(T) \cdot K[T]$

Line 170–18: morphism $K[T] \rightarrow K$

Lines 170–3, 170–2, 171+2: $(\text{Max } A)^{*k}$

Line 171+14, 15: If $a_1 A$ is proper,

Line 172+2: subsemigroup of $(K[T], \cdot)$.

Line 173–5: show that each non-zero prime ideal is maximal.

Line 174+5: $\mapsto \det f$ is

Line 177–18: $A^m \cong \bigoplus_{i=1}^m$

Line 183–13: Now $d_m K[T]$

Line 183–11: mial d_m is called

Line 184+8: *polynomial of an endomorphism is its last invariant factor,*

Line 188–13: Moreover, $L = K(a)$.

- Line 189–11:** polynomial $T^{d_m} - 1$ in $K[T]$
Line 189–10: $n = d_m$
Line 196–13: $(K^\alpha, *, \delta)$
Line 197–16: disjoint union $\bigcup_{X, Y \in \underline{\text{Set}}_0}$
Line 198+4: Example 1.6(b).
Line 209–1: YS in bottom, left-hand corner of (1.4.2).
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Line 223–12: $\text{Fix}(2^X, \langle T \rangle)$
Line 243+6: $\varinjlim F$
Line 264+18: In the image Example 3.3.2(b), consider the case
 where f surjects.
Line 265+6: Monarchy?
Line 284+14: $(A, \cdot, /, 1)$
Line 288–8: $\text{nat } \alpha :$
Line 308–3: $\bar{h} : X\Omega R_{\underline{K}} \rightarrow A$
Line 314–1: $P\Omega$ in bottom, left-hand corner of diagram
Line 363–16: Heyting algebra, 267
Line 365–19: monoid ring functor
Line 370–3: \widehat{V} , 327