Galois Theory (2nd edition)–Errata

Page 3, line -4: \( \varphi(\psi^2(\sqrt[3]{2})) \) should be \( \psi(\varphi^2(\sqrt[3]{2})) \)

Page 5, line -8: so \( \sigma^2 \) does not fix \( B \) should be so \( \sigma \) does not fix \( B \)

Page 10, line 12: \( \Phi(X) = X^p \) should be \( \Phi(a) = a^p \) for any \( a \in F \)

Page 15, lines 13-21: \( d(x) \) and \( \tilde{d}(x) \) should be interchanged throughout

Page 18, line 20: \( \deg r(X) < d \) should be \( r(X) = 0 \) or \( \deg r(X) < d \)

Page 24, line -1: \( F(\sigma_1) \) should be \( F(\alpha_1) \) and \( F(\sigma_2) \) should be \( F(\alpha_2) \)

Page 28, lines -10 and -4: \( m_\alpha(X) \) should be \( f(X) \)

Page 29, line 11: as \( \sigma_i(\tilde{m}_\alpha(X)) \in B[X] \) should be as \( \tilde{m}_\alpha(X) \in B[X] \)

Page 34, line 11: between \( E \) and \( B \) should be between \( E \) and \( F \)

Page 34, line -7: equivalent should be equivalently

Page 35, line 5: \( \Lambda(\sigma) = [\sigma_0] \) should be \( \Lambda(\sigma_0) = [\sigma] \)

Page 35, line 8: \( \Lambda(\sigma) = [\sigma_0] \) should be \( \Lambda(\sigma_0) = [\sigma] \) and \( \Lambda(\tau) = \tau_0 \) should be \( \Lambda(\tau_0) = [\tau] \)

Page 35, line 9: \( \Lambda(\sigma\tau) = [\sigma_0\tau_0] \) should be \( \Lambda(\sigma_0\tau_0) = [\sigma\tau] \)

Page 35, line 10: should read \( (\sigma G_B)(\tau G_B) = \sigma \tau G_B \), i.e., \( [\sigma][\tau] = [\sigma\tau] \) so \( \Lambda(\sigma\tau) = \Lambda(\sigma)\Lambda(\tau) \)

Page 35, lines -14 and -13: \( b \) should be \( \beta \)
Page 36, line -10: Let $E$ be a Galois extension of $F$ of degree $d$. should be Let $E$ be a Galois extension of $F$ that is a splitting field of a polynomial of degree $d$.

Page 38, line 3: $i$ is superfluous

Page 38: One subgroup was overlooked in the analysis of the group $G$. This has the following consequences:
Line 5: 15 subgroups should be 16 subgroups
Line 6: the normal subgroups of $G$ are $A_1$, $D_1$, $E_1$, $G_1$, $H_1$, $I_1$, and $J_1$
In the lists of subgroups, fixed fields, and splitting fields, add
$$H_1 = \{1, \tau^2, \tau^4, \tau\sigma, \tau^3\sigma, \tau^5\sigma\}$$
with Fix($H_1$) = $\mathbb{Q}(i)$ and Fix($H_1$) = splitting field of $X^2 + 1$, and rename the existing $H_1$ and $I_1$ to be $I_1$ and $J_1$ respectively.

Page 38, line 13: insert \{ after the first = sign

Page 43, Exercise 2.10.14: Assume that $E$ is an algebraic extension of $F$.

Page 43, Exercise 2.10.16: Assume that $f(X)$ and all of its factors are monic polynomials.

Page 57, line 15: $D$ should be $B$

Page 64, line -5: Corollary 3.4.6 should be Theorem 3.4.7

Page 68, line 17: $F = \text{Fix}(H)$ should be $B = \text{Fix}(H)$

Page 68, lines -3 and -2: $\sigma_2(\alpha_2) - \alpha_2$ should be $\alpha_2 - \sigma_2(\alpha_2)$

Page 118, line 9: $x \in \mathbb{Q}(\sqrt{\alpha_1}, \ldots, \sqrt{\alpha_{t-1}})$ should be $x \in \mathbb{Q}(\sqrt{\alpha_1}, \ldots, \sqrt{\alpha_{t-2}})$