Gallian 10th Ed Typos

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1 Notation

Page number ***(details to find typo)***

Mathematical typos will look like this

Page number ***(details to find typo)***

English typos will look like this

2 Typos

Page 131 ***(Chapter 6 Example 6)***

In step 2, change $MAM = MBA^{-1}$ to $MAM = MBM^{-1}$

Otherwise this would be clearly wrong

Page 132 ***(Chapter 6 Theorem 6.1)***

Part 7, change G and G to G and $\overline{G}$

Obviously, G and G should have the same number of elements of every order, since they are literally the same group. It's more interesting to discuss whether G and $\overline{G}$ have the same number of elements.

Page 138 ***(Chapter 6 Theorem 6.4)***

At the end with the $T(\alpha\beta)$ stuff, at the underbrace, change it to $\beta(1)$ times. Specifically $\underbrace{\alpha(1+1+\cdots+1)}_{\beta(1)}$ becomes $\underbrace{\alpha(1+1+\cdots+1)}_{\beta(1) \text{ times}}$ (Fixing the other one is left as an exercise)

Page 165 ***(Chapter 7 Exercise 32)***

On the last line, change "or order 2" to "of order 2".

Page 187 ***(Chapter 8 Exercise 39)***

On the first line, G should be $\{\, 3^m 6^n \mid m, n \in Z \,\}$ instead of $\{\, 3^m 6^m \mid m, n \in Z \,\}$. Similar issue with the last line

Page 187 ***(Chapter 8 Exercise 40)***

There is a missing bracket. The corrected bit should look like $|(a_1, a_2, \ldots, a_n)| = \infty$

Page 221 ***(Chapter 10 Theorem 10.1)***

On point 2, add in the missing brace. It should look like $\phi\left(g^n\right) = (\phi(g))^n$ instead.

Page 221 ***(Chapter 10 Theorem 10.1)***

At the beginning of the proof of property 3, insert "Let $\overline{e}$ be the identity of $\overline{G}$.

Page 221 ***(Chapter 10 Theorem 10.1)***

At the line "imply that $e = \phi(e) = \phi\left(g^n\right) = (\phi(g))^n$", add an overline over the e at the start to look like:

$$\overline{e} = \phi(e) = \phi\left(g^n\right) = (\phi(g))^n$$

Page 233 ***(Chapter 10 Exercise 8)***

$$\operatorname{sgn}(\sigma) = \begin{cases} +1 & \text{if } \sigma \text{ is an even permutation} \\ -1 & \text{if } \sigma \text{ is an } \textbf{even} \text{ permutation} \end{cases}$$

Change **even** to odd.

Page 238 ***(Chapter 10 Exercise 69)***

Change "Example 19" to "Example 18"

Page 247 ***(Chapter 11 Lemma 2)***

At the line "Since b was chosen to have smallest order such that $b \in \langle a \rangle$", change it to $b \notin \langle a \rangle$.

Refer to the beginning of the proof. No, we chose b of the smallest order such that $\mathbf{b} \notin \langle \mathbf{a} \rangle$, so this clearly can't be b.

Page 247 ***(Chapter 11 Lemma 2)***

At the line "For if $x \in \langle a \rangle \cap K$, then $\overline{x} \in \langle \overline{a} \rangle \cap \overline{K} = \{\, \overline{e} \,\} = \langle b \rangle$", change $\langle b \rangle$ to $\{\langle b \rangle\}$

Page 249 Chapter 11 Lemma 4

At the line "Since $(n' = M')$" change the M' to m'

We never introduced M' as a variable at any point

Page 262 ***(Chapter 12 Exercise 20)***

Change $R_0 \subset R_1 \subset R_2 \cdots$ to $R_0 \supset R_1 \supset R_2 \cdots$

The question asks to find a strictly **descending** series of subrings. The notation as used in the question is ascending.

Page 274 ***(Chapter 13 Exercises)***

Exercises 15 and 16 are duplicated (Chapter 12 Exercises 30 and 31) respectively

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It's possible the duplication is intentional, and you're supposed to solve this with a different method.

Page 285 ***(Chapter 14 Example 16)***

Remove $r(x)$

$$ax + b + \overbrace{\cancel{r(x)}}^{\text{Seems unnecessary}} = f(x) - q(x)(x^2 + 1) \in A$$

I don't know if this is a typo or not. It might be essential to the proof

Page 289 ***(Chapter 14 Exercise 41)***

Change "communitive" to "commutative"

Page 307 ***(Exercise 53a)***

Change $\phi - 1(A)$ to $\phi^{-1}(A)$

Page 320 ***(Chapter 16 Exercise 14)***

Change "the converse is to not true" to "the converse is not true"

Page 321 ***(Chapter 16 Exercise 29)***

Change "give an example of be a commutative ring" to "give an example of a commutative ring".