Page 40. The definition of centroid is incorrect. It should be defined as the point that minimizes the sum of the squares of the distances. There may be more than one point that minimizes the sum of the distances. For example, for two distinct points $a, b \in \mathbb{R}$, every point $x \in [a, b]$ minimizing $d(a, x) + d(b, x)$.

Page 47. The argument for why the inductive procedure draws the whole Farey graph is not correct, because the procedure is not invariant under the action of $SL(2, \mathbb{Z})$. It is a good exercise to give a correct argument.

Page 51. The definition of the $T_g$ is incorrect. As defined, the $T_g$ do not necessarily meet in at most one point. To make a simple counterexample, we start with the graph obtained from $\mathbb{R}$ by placing vertices at the integer points. We then attach another copy of the same graph at each vertex of the original graph. Then we consider the action of $\mathbb{Z}$ where the generator translates by 2. In this case, the intersection of two of the $T_g$ is either empty or an infinite graph.

Here is one way to correct the definition. For each $g \in G$, we assign a point of (the geometric realization of) the barycentric subdivision $T'$ to the tile $T_g$ if it is closer to $gv$ than any other element of the orbit of $v$ under $G$, or if it is a vertex of $T'$ that is the limit of such points. As in the above example, there will be some points of $T'$ that have not been assigned to any tile. Choose an edge $e$ of $T'$ that has not been assigned to a tile and is adjacent to some edge of some tile. Choose an arbitrary tile $T_g$ that $e$ is adjacent to, and assign $e$ to the tile $T_g$. Then for each nontrivial $h \in G$ we assign the edge $he$ to the tile $T_{hg}$. Continuing this process inductively, every edge of $T'$ can be assigned to a $T_g$ in such a way that the properties of a tiling on page 50 are satisfied.

Page 52. The term “symmetric generating set” was not defined. This is a generating set with the property that the inverse of each generator is also a generator.

Page 55. The text says “none of these 12 matrices.” The 12 should be a 6.

Page 56. Theorem 3.5 is incorrect as stated. A counterexample is the action of $\mathbb{Z}$ by translation on the graph obtained from $\mathbb{R}$ by placing vertices at the integer points. Theorem 3.5 can be corrected by adding the assumption that there are two orbits of vertices. The given proof is a correct proof of the corrected statement. The same correction is required for the statement of Theorem 3.6 on page 61. The case where there is one orbit of vertices is addressed in Project 2 on page 63.

Page 84. The definition of locally extended residually finite (LERF) given in Project 8 is incorrect. The definition given in this project is equivalent to residual finiteness. A group $G$ satisfies LERF if for every finitely generated subgroup $H \subseteq G$ and every $g \in G - H$, there is a finite index subgroup $H'$ such that $H \subseteq H'$ and $g \notin H'$. This is implied by the result in discussed Project 9.
Page 84. The result discussed in Project 9 is not Marshall Hall’s theorem, but a generalization of it. This result where $H$ is the trivial group is Marshall Hall’s theorem.

Page 87. In the statement of Lemma 5.2 we require $n \geq 2$.

Page 88. Exercise 3 is incorrect as stated. For example, we can take the trivial action of $\mathbb{Z}/2 \times \mathbb{Z}/2$ on the set \{a, b\}, we can take elements $g_1$ and $g_2$ to be any two nontrivial elements, the sets $X_1$ and $X_2$ to be both equal to \{b\}, and $x = a$. To correct the exercise we should replace hypothesis (2) of Lemma 5.2 with the assumption that $g_i^k(X - X_i) \subseteq X_i$.

Page 88. The formula $ab - cd > 0$ should be $ad - bc > 0$.

Page 91. Figure 5.5 is incorrect. It illustrates the map $1/\bar{z}$ instead of $1/z$. If we apply complex conjugation to the salmon colored square outside the circle, and leave the rest of the picture the same, we obtain a corrected picture.

Page 98. The formula $ab - cd > 0$ should be $ad - bc > 0$.

Page 98. In the last sentence of exercise 18, the PSL(2, $\mathbb{R}$) should be PSL(2, $\mathbb{C}$).

Page 99. The M"obius transformation indicated in Figure 5.10 on page 101 is $z \mapsto i - z - 1 + iz$, not $z \mapsto i - z + z$ as stated. The two transformations differ by a rotation.

Page 130. Part (2) of exercise 5 is incorrect. It is a good exercise to show why the given map is not a quasi-isometry.

Page 141. “A has infinite order” should be “a has infinite order.”

Page 218. “$v \in \partial T$” should be “$v \in T$.”

Page 227. In the definition of dim $X \leq n$ it should be added that the refinement $\mathcal{V}$ is also an open cover of $X$.

Page 243. In Exercise 6 we should assume that the group $G$ is infinite.

Page 299. The map $G(P_3) \to B_4$ sending $v_i$ to $\sigma_{i+1}$ is not a homomorphism as neither $\sigma_1$ nor $\sigma_3$ commute with $\sigma_2$. The graph $P_3$ should be replaced with the graph complement $\Gamma$ of $P_3$. That is, $\Gamma$ has three vertices $v_0$, $v_1$ and $v_2$ and one edge connecting $v_0$ to $v_2$. The map $G(\Gamma) \to B_4$ defined by $v_i \mapsto \sigma_{i+1}$ is a homomorphism and is not injective as $\sigma_1$ and $\sigma_2$ do not generate a free subgroup.

Page 329. After the displayed matrix for $gt$, the phrase “the coefficients of $P$ are exactly the same in $gt$ as in $t$” should be “the coefficients of $P$ are exactly the same in $gt$ as in $g$.”

Page 366. In the sentence “It follows that a compact orientable surface without boundary is
determined up to homeomorphism by any two of the three numbers $\chi, g, \text{ and } b$,” the phrase “without boundary” should be removed.

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