

SMALL CANCELLATION: EXERCISE SHEET 7

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- (1) First exercise from the proof of the decidability of the conjugacy problem for small cancellation groups.
- (2) Second exercise from the proof of the decidability of the conjugacy problem for small cancellation groups.
- (3) Let $S \subseteq \mathbb{N}$. Prove that the (possibly infinite) presentation $\langle a, b \mid \{(a^p b^p)^7\}_{p \in S} \rangle$ satisfies $C'(\frac{1}{6})$. Prove that $\langle a, b \mid \{(a^p b^p)^5\}_{p \in S} \rangle$ satisfies $C'(\frac{1}{4})$ -T(4). [1]
- (4) Prove that if two graphs Γ_1 and Γ_2 are quasi-isometric then for some $k \in \mathbb{N}$ there exist a pair of k -Lipschitz continuous maps $f: \Gamma_1 \rightarrow \Gamma_2$ and $g: \Gamma_2 \rightarrow \Gamma_1$ such that f and g send vertices to vertices and send edges to vertices or to geodesic paths and $d_{\Gamma_1}(g \circ f(x_1), x_1) \leq k$ and $d_{\Gamma_2}(f \circ g(x_2), x_2) \leq k$ for every $x_1 \in \Gamma_1$ and $x_2 \in \Gamma_2$.

REFERENCES

- [1] B. H. Bowditch. Continuously many quasi-isometry classes of 2-generator groups. *Comment. Math. Helv.*, 73(2):232–236, 1998.