

# Problem Set III, MAT 382, Fall 2020

Due November 16, 2020

Read Chapters 7 and 9 from the text book.

Read Chapter H.1 in the book by Bridson-Haefliger

1. Chapter 7: Exercises 5, 9, 10, 12, 13, 15, 18, 19, 23, .
2. Chapter 8: Exercises 3, 11, 12.
3. A group presentation

$$G = \langle a_1, \dots, a_k \mid R \rangle$$

is given to you and you further know that  $G$  is  $\delta$ -hyperbolic for a given  $\delta$ .

- (a) Describe an algorithm that determines if  $G$  is the trivial group.
- (b) Describe an algorithm that determines if  $G$  is quasi-isometric to  $\mathbb{Z}$ .