HOMEWORK 1

MATH 3140

SEBASTIAN CASALAINA

ABSTRACT. This is Homework 1. The problems are from Fraleigh [Fra03, §0]:

- HW1a Fraleigh Exercises 0: 2, 4, 10, 12, 14, 17.
- HW1b Fraleigh Exercises 0: 18, 19, 28, 30, 31, 36.

CONTENTS

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SECTION 0

Exercise 0.2. Describe the set $\{m \in \mathbb{Z} \mid m^2 = 3\}$ by listing its elements.

Solution. Since there is no integer whose square is equal to 3, we have that

$$\{m \in \mathbb{Z} \mid m^2 = 3\} = \{\ \};$$

i.e., the empty set $\emptyset$. □

Exercise 0.4. Describe the set $\{m \in \mathbb{Z} \mid m^2 - m < 115\}$ by listing its elements.

Solution. □

Exercise 0.10.

Solution. □

Exercise 0.12.

Solution. □

Exercise 0.14.

Solution. □

Exercise 0.17.

Solution. □

Exercise 0.18.

Solution. □

Exercise 0.19.

Solution. □

Exercise 0.28.

Solution. □

Exercise 0.30.

Solution. □

Exercise 0.31.

Solution. □

Exercise 0.36.

Solution. □

REFERENCES

[Fra03] John Fraleigh, *A First Course in Abstract Algebra*, Seventh edition, Addison Wesley, Pearson, 2003.

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