

Math 380 – Homework 1

Due on Thursday, April 9

You are welcome to talk with other students in the class about problems but should write up solutions on your own. Solutions can be handwritten or typed but need to be legible and submitted via Gradescope by the end of the day on Thursday. You should justify all your answers in order to receive full credit.

Good practice problems (not to be turned in):

CLO Section 1.1, Exercises 2, 6

CLO Section 1.2, Exercises 4, 13, 15

CLO Section 1.3, Exercises 1, 4, 8

Problem 1. CLO §1.2, Exercise 6 and

- c. Write the set $\{(0, 0), (1, 0), (0, 1)\}$ as an affine variety in \mathbb{R}^2 .

Problem 2. CLO §1.2, Exercise 8

Problem 3. CLO §1.3, Exercise 6 and

- d. Use this parametrization of the sphere to give a Pythagorean quadruple, *i.e.* positive integers $a, b, c, d \in \mathbb{Z}_{>0}$ for which $a^2 + b^2 + c^2 = d^2$.