

---

# Math 5362 - Algebraic Number Theory

## Homework 3

Due - Sunday 5 April 2020 11:59pm

---

1. Using Theorem 4.29, find the prime ideal factorization of

(a)  $\langle 5 \rangle$ ; and

(b)  $\langle 7 \rangle$ ,

in  $\mathbb{Z} \left[ \frac{1+\sqrt{-3}}{2} \right]$ .

2. Using Theorem 4.29, find the prime ideal factorization of

(a)  $\langle 2 \rangle$ ;

(b)  $\langle 5 \rangle$ ; and

(c)  $\langle 11 \rangle$ ,

in  $\mathbb{Z} [\sqrt{-1}]$ .