Test 1 study guide:

1. Computations / computational type proofs to know:

- What are the units in a given ring?   Ex: 4560 HW 1 #3
- Is a function a ring homomorphism?   Ex: 7.3 – 6;   4560 HW 4 #1
- Is a set an ideal of a ring? Ex: 7.3 #8;   4560 HW 5 #2, 5,
- Is a ring an integral domain? Ex: 4560 HW 2 #2
- Computations involving prime and maximal ideas.   Ex: 4560 HW 7 # 1,2,4

2. Proofs to know from class that could appear on the test:

- 1/23/20 – slide 5-7 - Prop about rings with 5 parts
- 1/27/20 – slide 5 - Thm: A field is an integral domain.
- 1/29/20 – slide 7 – Prop: An ideal is a subring.
- 2/3/20 – slide 3 – (a) is an ideal of R.
- 2/4/20 – slide 4 – The prop with two parts. The first part is if a unit is in an ideal then the ideal is the whole ring and the second part is about the ideals of a field F being only {0} and F.
- 2/5/20 – slide 1 – Prop about R/I being a commutative ring with identity when I is not R.
- 2/10/20 – slide 6 – Thm about the maximal ideals of Z
- 2/12/20 – slide 2 – Theorem: P is a prime ideal iff R/P is an integral domain

3. Look at the proofs from the HW (5402 and 4560) for practice.   In particular, look at proofs from the HW that involve ideals, homomorphisms, R/I, prime/maximal ideals.   These are the central topics.