

HOMEWORK 12 (DUE: 11:15 AM, DEC 12 WED)

1. Do Exercise 20.C.1–3 in [Pin10].
2. Do Exercise 22.B.1–7 in [Pin10]. You are allowed (and even recommended) to use the following fact: for $a, b \in \mathbb{Z}$, we have $(a) + (b) = (\gcd(a, b))$.
3. Do Exercise 24.A.1–3 (not all) in [Pin10].
4. Do Exercise 25.D.1–7 in [Pin10]. Note that part 3 and 4 were already discussed in the class. For part 1, you need the following definition:

Definition 0.1. For a commutative ring A and its elements $a, b \in A$, a and b are called *associates* to each other if there exists a unit $u \in A$ such that $b = ua$.

REFERENCES

[Pin10] Pinter, C. C., *A Book of Abstract Algebra*, 2nd ed., Dover Publications, 2010.