

1. – §6.1 – 9 (ungraded).
2. – §6.2 – 1 (ungraded).
3. – §7.1 – 3 (factor first) (ungraded).
4. – §6.1 – 18 (Hint: $24 = 2^3 \cdot 3$.)
5. – §6.1 – 22.
6. – §6.2 – 2.
7. – §6.3 – 6 (“Last k decimal digits of n ” means the reduced residue of $n \pmod{10^k}$.)
8. – (E) What are the possible values of $a^8 \pmod{13}$, as a ranges over the integers? (Hint: $a^8 = ((a^2)^2)^2$ (!) .)
9. – (E) Find an integer n so that $n^2 \equiv 131 \pmod{353^2}$. Numerical information of some (perhaps subtle) usefulness: 353 is prime, $22^2 = 484 = 131 + 353$, $353 = 1 + 2^5 \cdot 11$.
10. – (E) Compute $\text{ord}_{91}(2)$; that is, the smallest positive integer k so that $2^k \equiv 1 \pmod{91}$.