

REVIEW

I highly recommend you do these without looking at the solution, even though, almost all of these problems have solutions either online or in the back of the text.

- 1) Section 1.1 (4).
- 2) State the Well Ordering Principle.
- 3) Section 1.2 (18).
- 4) Section 1.3 (7).
- 5) Section 1.4 (24).
- 6) Section 1.5 (33).
- 7) Section 3.1 (8).
- 8) Section 3.3 (12).
- 9) Section 3.4 (2(a), 4(a)).
- 10) Section 3.5 (12).
- 11) Section 4.1 (10).
- 12) Section 4.2 (6).
- 13) Section 4.3 (4b).
- 14) Section 6.1 (28).
- 15) Section 6.3 (8).
- 16) Section 7.1 (20).
- 17) Section 7.2 (5(a), 6(d)).
- 18) Section 9.1 (7).
- 19) Section 9.2 (8).
- 20) Section 9.2 (10).
- 21) Section 9.3 (11).

You should also review all exam and quiz questions, along with other homework questions.

Turn in the following for your take home quiz.

- 1) Are there integers a, b, c such that $a|bc$ but $a \nmid b$ and $a \nmid c$? What if a is prime?
- 2) What is the greatest common divisor of a and pa where p is prime? (Explain your answer.)
- 3) Show that if a, b, c are integers with $c > 0$ such that $a \equiv b \pmod{c}$ then $(a, c) = (b, c)$.
- 4) Show that if n is odd and $3 \nmid n$ then $n^2 \equiv 1 \pmod{24}$.
- 5) Find all n such that $\phi(n) = 10$.
- 6)
 - a) Find a complete set of incongruent primitive roots modulo 11, and reduce them into the interval $[0, 11)$.
 - b) Find a complete set of incongruent primitive roots modulo $2 \cdot 11$.
 - c) Find one primitive root modulo 5^2 .
 - d) Find one primitive root modulo 5^k for all positive integers k