Lecture 6 - Homework

Question 1. Let $x \in \mathbb{Z}$ and let p be a prime number. Determine all possible values of $\gcd(x, p)$.

Question 2. Which of the following numbers are prime?
Hint: Theorem 6.2 should help speeding up the process.

- 231.
- 560.
- 433.
- 79.

Question 3. Preform a prime factorization of the following natural numbers.

(a) 363.

(b) 237.

(c) 688.

(d) 732.

Question 4. Simplify the following exponential expressions.
(Leave answers with positive exponents)

(a) $(x^{-4})/(y^{-5})^{-2}$.

(b) $(z^2y^{-6}x^{-7})^{-3}$.

(c) $(16a^3b^{-4}z^{-12})/(4a^{-3}b^{-2})^3$.

(d) $16^{\frac{3}{2}}$.

Question 5. Textbook, Pg. 39 Q1. b),d),f)

Question 6. Textbook, Pg. 39 Q2.

Question 7. Textbook, Pg. 39 Q3. b),d),f)

Question 8. Textbook, Pg. 39 Q4. b),d),f)

Question 9. Textbook, Pg. 39 Q5. b),d),f)

Question 10. Textbook, Pg. 39 Q6. a),c),e),f)

Question 11. Textbook, Pg. 39 Q7. b),d),f)

Question 12. Textbook, Pg. 39 Q8.