

Homework #4

Last Name: _____

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TRANSITION TO ADVANCED MATHEMATICS
HOMEWORK#4 – DUE THURSDAY, 02/22

Problem 1 (Euclid's Lemma). Let a , b and p be integers. If p is prime and p divides ab , then p divides a or p divides b .

Problem 2. Prove that there are infinitely many prime numbers.

Problem 3. Prove that $\sqrt{3}$ is not a rational number.

Problem 4. Exercise 2.1.4(a, b, d, f, g, h, j).

Problem 5. Exercise 2.1.5(a, b, d, f, g, h, j, l).

Problem 6. Exercise 2.1.15(b, d, f, g, h).

Problem 7. Exercise 2.2.3.

Problem 8. Exercise 2.2.9(a, b, d, f).

Problem 9. Exercise 2.2.11(b, d).

Problem 10. Exercise 2.2.13(a).