Math 6301 Homework 1

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Notation: **J**.1 means Jones Chapter 1.

1. **J**.1: 18cd

2. **J**.1: 19

3. **J**1: 21de

4. **J**.1: 32df

5. **J**.1: 35

6. Let $B(x, r)$ be the open ball centered at x with radius r. Prove that $B(x, r) \subseteq B(x', r')$ if and only if $d(x, x') \leq r' - r$.

7. Give an example of disjoint closed sets, A and B, of $\mathbb{R}^2$ for which there does *not* exist an $\epsilon > 0$ so that for all $x \in A$ and $y \in B$ we have $d(x, y) \geq \epsilon$. **Hint:** The Corollary on [**J**, page 14] tells us that at least one of the sets A and B cannot be compact.

Additional Problem [Not not hand in]

1. **J**.1: 1

2. **J**.1: 40bde

3. **J**.1: 43

4. **J**.1: 44

5. **J**.1: 48

6. **J**.1: 49

7. **J**.1:15

8. **J**.1: 20

9. **J**.1: 2cd

10. **J**.1: 39

11. **J**.1: 43

12. **J**.1: 47

13. **J**.1: 51