

**MATH W4051 PROBLEM SET 3**  
**DUE SEPTEMBER 23, 2008.**

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- (1) Let  $(X, d)$  be a metric space, and  $f: X \rightarrow X$  a continuous map. Prove that the function  $g: X \rightarrow \mathbb{R}$  defined by  $g(x) = d(x, f(x))$  is a continuous function. (We used this in class.)
- (2) Prove that any finite CW complex is compact.
- (3) Munkres 26.5
- (4) Munkres 26.8
- (5) Munkres 27.5
- (6) Munkres 28.6
- (7) Munkres 29.8

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