

Fall, 2011

MATH 3500(H)
PROBLEM SET #6

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DUE Wednesday, September 28, 2011.

Problems to work but not hand in:

§3.1: #1a,c, 2a,b, 3a.

§3.2: #1a,f, 2a,e, 3, 4.

Problems to turn in:

§2.3: #3 (3), 5* (3), 8g,h[†],i[‡] (3), 13 (2), 15 (3).

WeBWork Homework 6

§3.1: #4 (2), 8[§] (3).

§3.2: #5 (2), 12 (2), 17 (3).

Challenge problems (Turn in separately):

§2.3: #16 (5), 17 (5).

A. (4) Prove or give a counterexample: If $f: \mathbb{R}^2 \rightarrow \mathbb{R}$ is continuous along every (continuous) path \mathbf{g} through the origin, then f is continuous at the origin.

§3.1: #13 (3).

*Hint: Apply the definition of continuity with an appropriate *choice* of $\varepsilon > 0$.

†Hint: What basic inequality do you know about $|\sin y|$ that controls the function for $|y|$ small?

‡Hint: What if $y = x + g(x)$ where $g(x)$ is very small?

§Don't forget the single-variable chain rule!