MATH 30b - Orrison
Limits
September 6th, 2016

Homework Set 2 - {1, 2, 3, 4, 5}

Use an $\epsilon - \delta$ proof to prove that $\lim_{x \to 5} (2x + 5) = 15$.

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Use an $\epsilon - \delta$ proof to prove that $\lim_{x \to -5} (-2x - 20) = -10$.

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Use an $\epsilon - \delta$ proof to prove that $\lim_{x \to 0} x^2 \sin \frac{1}{x} = 0$.

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Use an $\epsilon - \delta$ proof to prove that $\lim_{x \to \pi} \left(x^2 - 2\pi x\right) = -\pi^2$.

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Prove that if $f(x) = x$ for rational x, and if $f(x) = -x$ for irrational x, then $\lim_{x \to a} f(x)$ does not exist for $a \neq 0$.

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