Math 10A with Professor Stankova
Worksheet, Discussion #14; Wednesday, 9/27/2017
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True/False Questions

1. True False You can tell what the domain and range of an inverse function is only from the domain and range of the original function
2. True False The horizontal line test tells us whether a function is injective or surjective.
3. True False The range of e^x is $[0, \infty)$.
4. True False If $\lim_{x \to 0} f(x)$ exists, then $\lim_{x \to 0} f(x) = f(0)$.
5. True False Extrema of a function must occur when the derivative is 0, when it doesn't exist, or at the endpoints.
6. True False The expression 0^∞ is an indeterminate.
7. True False The continuity law for subtraction follows from the limit law for subtraction.
8. True False The continuity of a constant function follows from limit laws.
9. True False The continuity law for rational functions follows only from the limit laws for ratios.
10. True False If f is not continuous at $x = c$, then f is not differentiable at $x = c$.
11. True False We can use the power rule to find the derivative of x^x.

Proofs

12. Prove that if a function is differentiable at a point, then it is continuous there.
13. Prove that if f, g are continuous at $x = c$, then $f(x)g(x)$ is continuous at $x = c$.
14. Prove the addition continuity law.