Math 10A with Professor Stankova
Quiz 15; Wednesday, 12/6/2017
Section #106; Time: 10 AM
GSI name: Roy Zhao **Name:** _____

Circle True or False or leave blank. (1 point for correct answer, -1 for incorrect answer, 0 if left blank)

1. True False The vertical line test tests whether a curve in the plane is the graph of a function.
2. True False While a limit $\lim_{x\to c} f(x)$ does not care what happens exactly at $x = c$ because the limit is concerned only with the behavior of $f(x)$ nearby $x = c$, continuity does care about both and wants them to coincide.

Circle True or False. (1 point for correct answer, 0 for incorrect answer.)

3. True False If a function is not differentiable at $x = c$, then it cannot be continuous there either.
4. True False $\sqrt{3}$ can be approximated by using Taylor Polynomials and by Newton's method; however, different functions are needed in each approach.
5. True False Riemann sums are somewhat cumbersome tools for finding approximations of areas, yet they are absolutely necessary to link antiderivatives to areas.
6. True False To calculate the definite integral $\int_{-5}^{5} \sqrt{25 - x^2}dx$, we must find an antiderivative of $\sqrt{25 - x^2}$ and use the FTC I to evaluate it at the ends of the interval $[-5, 5]$.
7. True False $(\ln |x|)' = 1/|x|$ for all $x \neq 0$.
8. True False We can show that $\int_5^\infty \frac{1}{x^{1.01}}dx$ converges in at least three ways: by a brute force calculation using the definition of an improper integral, by representing $\int_5^\infty \frac{1}{x^{1.01}}dx$ as part of $\int_1^\infty \frac{1}{x^{1.01}}dx$ and then using a formula from class for the value of the latter integral, or by comparing it with the more familiar to us integral $\int_5^\infty \frac{1}{x^1}dx$.
9. True False For a symmetric distribution centered at 0, we do not have to calculate σ because it will always be 0 or not well-defined.
10. True False Normal distributions are defined only for positive X; yet, when converted to the standard normal distribution, they may be defined for negative X too.
11. True False $P(A \cup B) = P(A) + P(B)$ as long as A and B are independent events in different outcome spaces.
12. True False For any RV's X and Y, it is true that $E(5X - 7Y) = 5E(X) - 7E(Y)$ and $E(XY) = E(X)E(Y)$.