Problem 8. As a definition, we say that a function $f(x)$ is continuous at $x = a$ if for every $\epsilon > 0$, there exists $\delta > 0$ such that $|f(x) - f(a)| < \epsilon$ whenever $|x - a| < \delta$. In a meaningful way, state what it means for a function $f$ to not be continuous at the point $x = a$.

Problem 9. Consider the following statement: If $n^2$ is odd, then $n$ is odd.

i. Write the contrapositive of this statement.

ii. Prove this statement using the contrapositive.

Problem 10. Consider the following statement: The product of two odd numbers is an odd number.

i. Prove this statement.

ii. Write the contrapositive of this statement.

(Hint: Be careful to check that what you wrote is a true statement.)