MATH 1525 CALCULUS I Quiz 9 Name:
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Problem 1. Let $f(x) = 12 - x^2$. Consider the region bounded by the graph of f and the x-axis. Find the maximum area of a rectangle with one side on the x-axis which can be contained in the region.

Problem 2. Estimate $\sqrt{78}$ as follows. Let $f(x) = x^2 - 78$.

(a) Find the integer a such that a^2 is the closest perfect square to 78.

(b) Find the linear function $L(X)$ which is tangent to $f(x)$ at the point $(a, f(a))$.

(c) Find r such that $L(r) = 0$.