

Sample problems for the Advanced Placement exam for MATH 1551

1. Use the definition of the derivative to compute $f'(0)$ for $f(x) = |x|$.
2. Find all the point(s) on the graph of $f(x) = x^3 - 3x^2 + 2$ at which the tangent line is parallel to the line $y = 9x + 4$.
3. A rectangle is constructed with its base on the x-axis and its two upper vertices on the parabola $y = 121 - x^2$. What are the dimensions of the rectangle with the maximum area? What is the area?