4.7 – Applied Optimization, Part II

1. A landscape architect wishes to enclose a rectangular garden of area 1000 m^2 on one side by a brick wall costing \$90/m and on the other three sides by a metal fence costing \$30/m. Find the dimensions of such a fence that minimize cost.

2. A rectangular storage container with an open top and a square base is to have a volume of 20 ft^3. Material for the base costs $5 per square foot. Material for the sides costs $2 per square foot. Find the cost of materials for the cheapest such container.

3. Find the area of the largest rectangle that can be inscribed in a semicircle of radius 2.

4. Find the area of the largest rectangle that can be inscribed in the region in quadrant I bounded by the graph of $y = \dfrac{4-x}{2+x}$.