Extra credit Assignment

A contractor is planning a new housing development consisting of colonial, split-level, and ranch-style houses. A colonial house requires 1/2 acre of land, $60,000 capital, and 4,000 labor-hours to construct, and returns a profit of $20,000. A split-level house requires 1/2 acre of land, $60,000 capital, and 3,000 labor-hours to construct, and returns a profit of $18,000. A ranch house requires 1 acre of land, $80,000 capital, and 4,000 labor-hours to construct, and returns a profit of $24,000. The contractor has 30 acres of land, $3,200,000 capital, and 180,000 labor-hours available. How many houses of each type should be constructed to maximize the contractor’s profit? What is the maximum profit? Set up the objective function and constraints, and use Simplex Method to solve. Show all of the work to get full credit.