

You are encouraged to work in groups of two to four on this assignment and make a single group submission. Each problem is worth 5 points. For full credit indicate clearly how you reached your answer. All work must be legible and submitted on clean paper without ragged edges.

1. Do problem #22 in §15.2.
2. Do problem #24 in §15.2.
3. Find all local extrema of the function $f(x, y) = 2x^2 + x + y^2 - 2$ subject to the constraint $x^2 + y^2 = 4$.
4. Find the global extrema of the function f from problem 3 within the region $x^2 + y^2 \leq 4$.
5. Do problem #21 from §15.3, but with the budget for the clinic cut to \$480,000 per year.
6. Find, correct to three decimal places, the point whose total distances to the origin, the point (2,0), and the point (0,3) is a minimum.