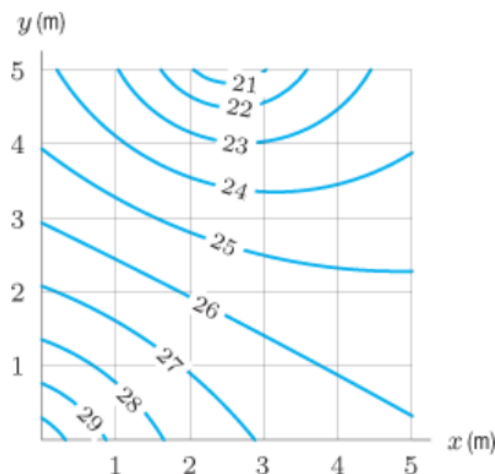


Team Homework 6

1. Consider the function $h(x, y) = -2x^2 + 2xy - y^3$. Find all the critical points of h , and classify each as either a local maximum, a local minimum, or a saddle point. Show all work.
2. The figure below shows the temperature, in $^{\circ}\text{C}$, in a 5 meter by 5 meter heated room. Using Riemann sums, estimate the average temperature in the room.



3. Use four subrectangles to approximate the volume of the object whose base is the region $0 \leq x \leq 4$ and $0 \leq y \leq 6$, and whose height is given by $f(x, y) = x + y$.