This is Chapter 11 in the book.

1a. Is $f(x,y) = x^2+y^3-3xy$ convex?

1b. Is $f(x,y,z) = x^2+y^2+z^2+6x+6y+6z+2xyz$ convex?

2. a Starting with $x_l=-5$ and $x_r=11$, perform the bisection method for 4 iterations on $f(x)=x^4+x^2$

2. b Starting with $x_l=-5$ and $x_r=11$, perform the bisection method for 4 iterations on $f(x)=4x^4-x^2+5$

3a. Starting with $x_l=-5$ and $x_r=11$, perform the golden search method for 4 iterations for $f(x)=x^4+x^2$.

3b Starting with $x_l=-5$ and $x_r=11$, perform the golden search method for 4 iterations on $f(x)=4x^4-x^2+5$

4a. From a starting points of 0 and 1, perform the intial search algorithm to determine an optimal region for $x^2-10x+25$.

4a. From a starting points of 0 and 1, perform the intial search algorithm to determine an optimal region for $x^2-.2x+.04$.

5a. Perform two iterations of the gradient search method on $f(x,y)= x^2+4xy+2y^2+2x+2y$. Use (0,0) as a starting point.

6. Find all KKT points of

Minimize	$-x^3-xy$
Subject to	$x+y=4$
	$x \leq 2$