**1.** Maximize the following function using **Newton’s Method:**

Use a non-zero initial value of x and 0.0001 as relative approximation error.

**2.** Consider the **linear programming problem**:  
Maximize f(x, y) =   
subject to

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | x1 | + | 2x2 | ≤ | 16 |
|  |  |  | x1 | + | x2 | ≤ | 9 |
|  |  |  | 3x1 | + | 2x2 | ≤ | 24 |
|  |  |  | x1 | , | x2 | ≥ | 0 |

Obtain the solution:  
**(a)** Graphically.  
**(b)** Using the simplex method.