Assignment-3

$f(x) = 3x^2 + 5e^{-y} + 10$

Step-1

$x = 2$, itr_max = 2, itr = 1

Step-2

$m = \frac{\partial f}{\partial x} = 6x + 5e^{-y}(-1)$

$= 6(5) + 0$

$= 30$

Step-3

$\Delta x = -\eta \frac{\partial f}{\partial x} = -0.1 \times 30 = 3$

Step-4

$x = x + \Delta x = 2 + 3 = 5$

Step-5

itr = itr + 1 = 1 + 1 = 2

Step-6

if (itr > itr_max)

false goto step-2

Step-2

$m = \frac{\partial f}{\partial x} = 6x = 130$

Step-3

$\Delta x = -\eta \frac{\partial f}{\partial x} = 18$

Step-4

$x = x + \Delta x = 5 + 18 = 23$

Step-5

itr = itr + 1 = 2 + 1 = 3

Step-6

if (itr > itr_max)

True → next step

Step-7

Print $x, f(x)$.