**Problem 1 (Separation of Variables)**

Solve the following differential equations by separation of variables:



**Problem 2**

Solve the IVP numerically

= f(t, y) = 4 - 2t + 2.5y

Let t0 = 0, y(0) = 1

Additionally, choose t to be in increment of 0.1 until you reach t = 0.4. Show your result in tabular form using the format below:

|  |  |  |  |
| --- | --- | --- | --- |
|  | t | Euler (yn) |  |
| 0 | 0 | 1 | 6.50 |
| 1 | 0.1 | 1.650 | 7.925 |
| 2 | 0.2 | 2.443 | 9.707 |
| 3 | 0.3 | 3.414 | 11.935 |
| 4 | 0.4 | 4.608 | 14.720 |