

```

1  % Task Set B
2  clc;
3  close all;
4
5  h = 0.1;
6  t = 0:h:24;
7  N = 241;
8  T = zeros(1, N);
9  T(1) = 50; % Initial condition
10
11  f = @(t, T) 0.25 * (75 - T);
12
13  for n = 1:N-1
14      k1 = f(t(n), T(n));
15      k2 = f(t(n) + h/2, T(n) + h*k1/2);
16      k3 = f(t(n) + h/2, T(n) + h*k2/2);
17      k4 = f(t(n) + h, T(n) + h*k3);
18      T(n+1) = T(n) + (h/6)*(k1 + 2*k2 + 2*k3 + k4);
19  end
20
21  T_exact = 75 - 25 * exp(-0.25 * t);
22
23  % Plot
24  figure;
25  plot(t, T, 'ro');
26  hold on;
27  plot(t, T_exact, 'b-');
28  xlabel('t');
29  ylabel('T(t)');
30  legend('RK4 Approximation', 'Exact');
31  title('RK4 Method - Task Set B');
32
33  disp('Max Temperature:');
34  disp(max(T));
35

```