

```

1 % Task Set F - Question 1
2 clc;
3 clear all;
4
5 h = 0.1;
6 t = 0:h:24;
7 N = 241;
8 T = zeros(1, N);
9 T(1) = 75;
10
11 f = @(t, T) 7 * sech((3/4) * (t - 10)) + 2 * (77 - 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 % Plot
22 figure;
23 plot(t, T, 'ro');
24 xlabel('t');
25 ylabel('T(t)');
26 legend('RK4 Approximation');
27 title('Task Set F - Q1');
28
29 disp('Max T:');
30 disp(max(T));
31

```