function I = trapezoidal\_method(f, a, b, n)

 % f is the function to integrate

 % a and b are the limits of integration

 % n is the number of subintervals

 % I is the estimated integral

 % Step size

 h = (b - a) / n;

 % Evaluate the function at the endpoints

 sum = f(a) + f(b);

 % Evaluate the function at the intermediate points and sum them up

 for i = 1:n-1

 sum = sum + 2 \* f(a + i \* h);

 end

 % Multiply by the step size and divide by 2

 I = (h / 2) \* sum;

end