```
>> %% Problem 2

% define standard values
x_0 = 0;                          % begin point
x_f = 1;                          % end point
n = 10;                           % number of steps
h = (x_f - x_0) / n;             % time step value
x = linspace(x_0,x_f,n+1);       % array of x values
f = x.^3 + 2 * x;                % function value at each time step
summation = 0;                    % initialize summation value at 0

for i = 0:n
    if i == 0 || i == n      % first and last time steps
        a = 1;                % coeficcient of 1
    elseif mod(i,2) == 0      % even time steps
        a = 2;                % coefficient of 2
    else                      % odd time steps
        a = 4;                % coefficient of 4
    end
    summation = summation + a*f(i+1);    % add apropriate value to summation
end
area = h * summation / 3

area =

    1.2500

>>
```