

```
function [EX] = Midpoint_Method(f_x, a, b, n, h)
% Midpoint Method function that calculates the expected value of a
% probability density function (PDF)
% f_x - x * PDF function
% a - initial x
% b - final x
% h - step size
% n - number of intervals

% Store all the x values in a vector form.
x = a:h:b;

% Initialize Expected Value.
EX = 0;

% Calculate the Expected Value with midpoint method.
for iter = 1:n

    % Calculate the value needed to pass into the function
    c = (x(iter) + x(iter + 1)) / 2;

    % Accumulate the EX value
    EX = EX + f_x(c);

end

% Calculate the final EX value
EX = h * EX;

end
```