邊界元素法第三次作業

1. The fundamental solution $U_1(x, s)$ satisfies

$$\frac{d^4 U_1(x, s)}{dx^4} = \delta(x - s) \tag{1}$$

where

$$U_1(x, s) = \begin{cases} \frac{1}{12}(x - s)^3, & x > s, \\ -\frac{1}{12}(x - s)^3, & x < s \end{cases} \tag{2}$$

Please derive the stiiffness matrix of K.

2. If $U_2(x, s) = 2\pi U_1(x, s)$, please derive the stiiffness matrix of K.

3. If $U_3(x, s) = U_1(x, s) + a$ where a is a constant, please derive the stiiffness matrix of K.

4. If $U_4(x, s) = U_1(x, s) + a + bx$ where a and b are constants, please derive the stiiffness matrix of K.

5. If $U_5(x, s) = U_1(x, s) + a + bx + cx^2$ where a, b and c are constants, please derive the stiiffness matrix of K.

6. If $U_6(x, s) = U_1(x, s) + a + bx + cx^2 + dx^3$ where a, b, c and d are constants, please derive the stiiffness matrix of K.