

邊界元素法1999 第六次作業

1. Given the kernel function, $K(x, s)$ as follows:

$$K(x, s) = \frac{1}{2} |x - s|$$

2. Plot 3-D diagram for $K(x, s)$ versus (x, s) on the range $-2 < x < 2$ and $-2 < s < 2$.
3. Plot contour diagram for $K(x, s)$ versus (x, s) on the range $-2 < x < 2$ and $-2 < s < 2$.
4. Transform the two independent variables (x, s) to (u, v) as follows:

$$u = \frac{1}{\sqrt{2}}(x + s)$$

$$v = \frac{1}{\sqrt{2}}(x - s),$$

determine $F(u, v)$ such that

$$F(u, v) = K(x, s)$$

5. Plot 3-D diagram for $F(u, v)$ versus (u, v) on the range $-2\sqrt{2} < u < 2\sqrt{2}$ and $-2\sqrt{2} < v < 2\sqrt{2}$.
6. Plot contour diagram for $F(u, v)$ versus (u, v) on the range $-2\sqrt{2} < u < 2\sqrt{2}$ and $-2\sqrt{2} < v < 2\sqrt{2}$.