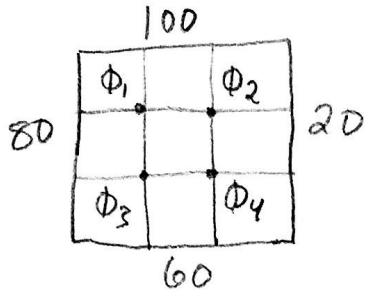
2.2.1.



For Φ_1 $(x,y)=(1/3, 2/3)$, $(a,b)=(1,1)$ at $n=1$

$$V_L = \frac{4(80)}{\pi} \frac{\sinh\left(\frac{\pi(1-1/3)}{1}\right)\sin\left(\frac{\pi(2/3)}{1}\right)}{(1)\sin(\pi(1/1))} = 30.54$$

$$V_b = \frac{4(60)}{\pi} \frac{\sinh\left(\frac{\pi(1-2/3)}{1}\right)\sin\left(\frac{\pi(1/3)}{1}\right)}{(1)\sinh(\pi(1))} = 7.16$$

$$V_t = \frac{4(100)}{\pi} \frac{\sinh(\pi(2/3))\sin(\pi(1/3))}{\sinh(\pi)} = 38.18$$

$$V_r = \frac{4(20)}{\pi} \frac{\sinh(\pi(1/3))\sin(\pi(2/3))}{\sinh(\pi)} = 2.39$$

$\Phi_1 = V_L + V_b + V_t + V_r = 30.54 + 7.16 + 38.18 + 2.39 = 78.27$

Repeating for Φ_2 $(x,y)=(2/3, 2/3)$, $(a,b)=(1,1)$

$V_L = 9.54$ $V_b = 7.16$ $V_t = 38.18$ $V_r = 7.64$

$\Phi_2 = 62.52$

Φ_3 $(x,y)=(1/3, 1/3)$, $(a,b)=(1,1)$

$V_L = 30.54$ $V_b = 22.91$ $V_t = 11.93$ $V_r = 2.39$

$\Phi_3 = 67.77$

Φ_4 $(x,y)=(2/3, 1/3)$, $(a,b)=(1,1)$

$V_L = 9.54$ $V_b = 22.91$ $V_t = 11.93$ $V_r = 7.64$

$\Phi_4 = 52.02$

The way it's done in the book:

$\Phi_1 = (100 + 80 + 65 + 65)/4 = 77.5$

$\Phi_2 = (100 + 20 + 77.5 + 65)/4 = 65.63$

$\Phi_3 = (77.5 + 80 + 65 + 60)/4 = 70.63$

$\Phi_4 = (20 + 60 + 65.63 + 70.63)/4 = 54.06$