Note: It make sense to let the temperature at $r = infinite$ to be equal to 25 (assuming that we have a unitary circle L=1, otherwise we would have 25L), since we have the BC at r=L to be 100 on 1/4 of the ring. It is reasonable to assume that the heat will dissipate evenly inside the other 3 parts of the ring, arriving to 25 degrees on each quadrant of the ring.

$with(plots):$
$phisin := \sin(n \cdot x):$
$phicos := \cos(n \cdot x):$

$$An := \frac{int\left(100 \cdot phisin, x = 0..\frac{\text{Pi}}{2}\right)}{int\left(phisin^2, x = 0..2 \cdot \text{Pi}\right)} \text{assuming}(n > 0, n, integer)$$

$$An := -\frac{100\left(-1 + \cos\left(\frac{n\,\pi}{2}\right)\right)}{n\,\pi} \tag{1}$$

$$Bn := \frac{int\left(100 \cdot phicos, x = 0..\frac{\text{Pi}}{2}\right)}{int\left(phicos^2, x = 0..2 \cdot \text{Pi}\right)} \text{assuming}(n, integer, n > 0)$$

$$Bn := \frac{100 \sin\left(\frac{n\,\pi}{2}\right)}{n\,\pi} \tag{2}$$

$addcoords(zcylindrical, [z, r, \theta], [r\cos(\theta), r\sin(\theta), z])$

$psum1 := sum\left(\left(\frac{1}{r^n}\right) \cdot An \cdot phisin, n = 1..100\right):$

$psum2 := sum\left(\left(\frac{1}{r^n}\right) \cdot Bn \cdot phicos, n = 1..100\right):$

$psum := 25 + psum1 + psum2:$

$contourplot(psum, r = 1..3, x = 0..2 \cdot \text{Pi}, coords = zcylindrical, scaling = constrained, filledregion = true)$