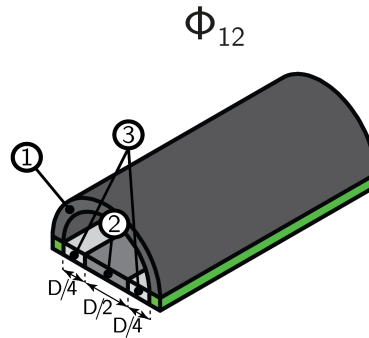


View Factor 30

Determine for a long semi-circular body the view factor Φ_{12} :



A flat plate can never see itself and therefore:

$$\Phi_{22} = \Phi_{33} = 0$$

Surfaces 2 and 3 cannot see each other and therefore:

$$\Phi_{23} = \Phi_{32} = 0$$

From the summation rule ($\Phi_{21} + \Phi_{22} + \Phi_{23} = 1$) one finds:

$$\Phi_{21} = 1$$

Using the reciprocity rule ($\Phi_{12}A_1 = \Phi_{21}A_2$):

$$\Phi_{12} = \Phi_{21} \frac{A_2}{A_1} = \frac{\frac{1}{2}DL}{\frac{1}{2}\pi DL} = \frac{1}{\pi}$$