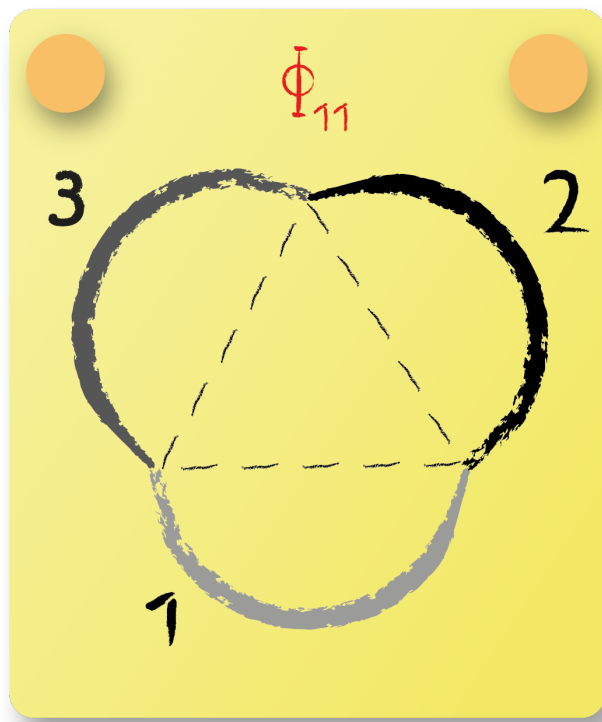# View Factor: Task 20

The image shows a combination of 3 hemisphere bodies. What is ϕ_{11}?

1

$\phi_{11} = 1 - 2/\pi$

2

$\phi_{1,2}$ is calculated by first calculating the view factor from the hemisphere 1 to the plane indicated by the dashed line (H). For hemisphere 1, $\phi_{H,H} = 0$ and $\phi_{H,1} = 1$. Reciprocity rule can be applied for $\phi_{1,H} = (A_H/A_1) \cdot (\phi_{H,1})$ and from this equation $\phi_{1,H} = 2/\pi$. Now, the enclosure rule can be applied $\phi_{1,1} + \phi_{1,H} = 1$.