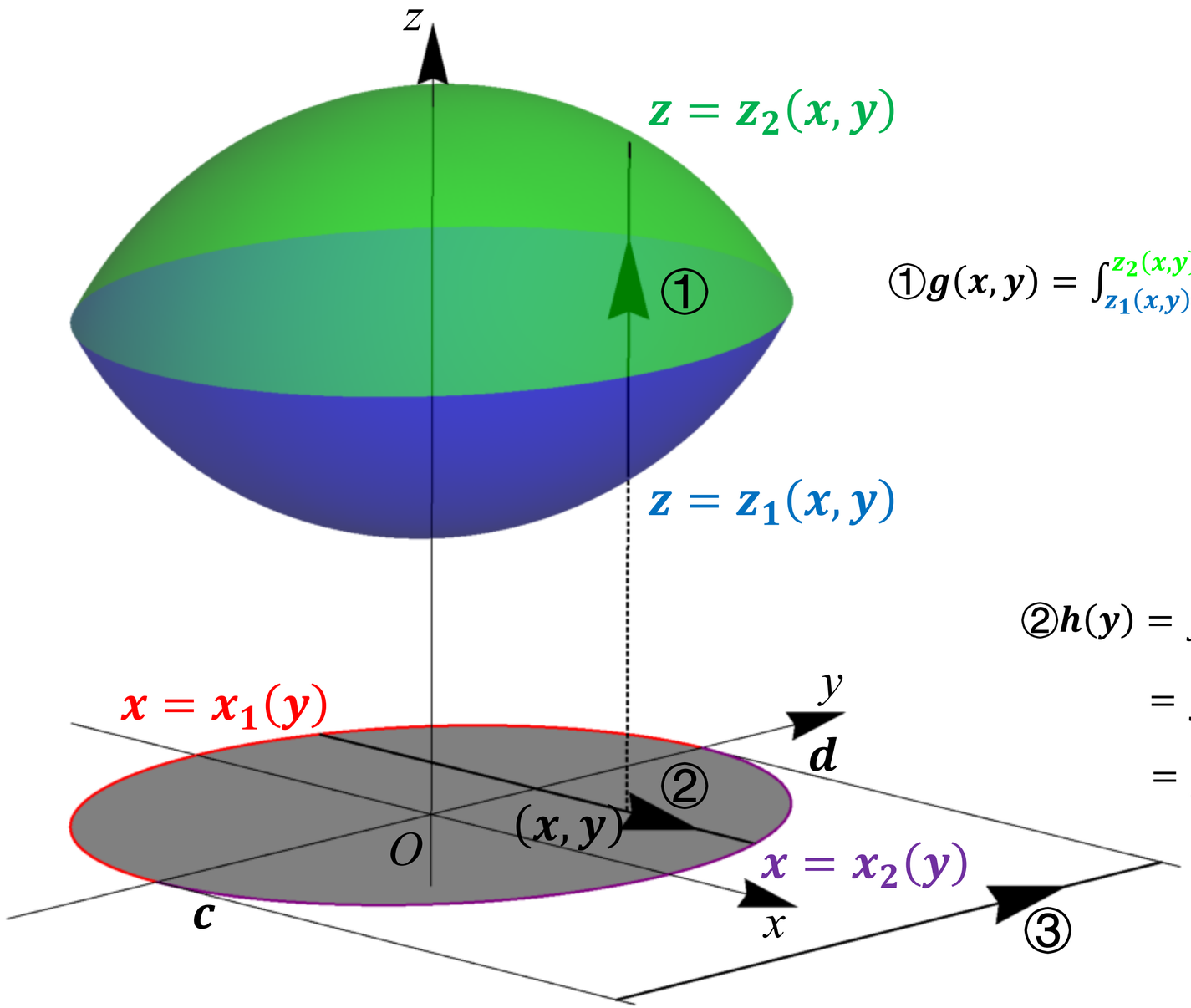

$$①\boldsymbol{g(x,y)} = \int_{z_1(x,y)}^{z_2(x,y)} \boldsymbol{f(x,y,z)}\,\mathbf{dz}$$

$$②\boldsymbol{h(y)} = \int_{x_1(y)}^{x_2(y)} \boldsymbol{g(x,y)}\,\mathbf{dx}$$
$$= \int_{x_1(y)}^{x_2(y)} \left[\int_{z_1(x,y)}^{z_2(x,y)} \boldsymbol{f(x,y,z)}\,\mathbf{dz}\right]\mathbf{dx}$$
$$= \int_{x_1(y)}^{x_2(y)} \mathbf{dx} \int_{z_1(x,y)}^{z_2(x,y)} \boldsymbol{f(x,y,z)}\,\mathbf{dz}$$

$$③\iiint_{\Omega} \boldsymbol{f(x,y,z)}\,\mathbf{dxdydz} = \int_c^d \boldsymbol{h(y)}\,\mathbf{dy}$$
$$= \int_c^d \left[\int_{x_1(y)}^{x_2(y)} \mathbf{dx} \int_{z_1(x,y)}^{z_2(x,y)} \boldsymbol{f(x,y,z)}\,\mathbf{dz}\right]\mathbf{dy}$$
$$= \int_c^d \mathbf{dy} \int_{x_1(y)}^{x_2(y)} \mathbf{dx} \int_{z_1(x,y)}^{z_2(x,y)} \boldsymbol{f(x,y,z)}\,\mathbf{dz}$$