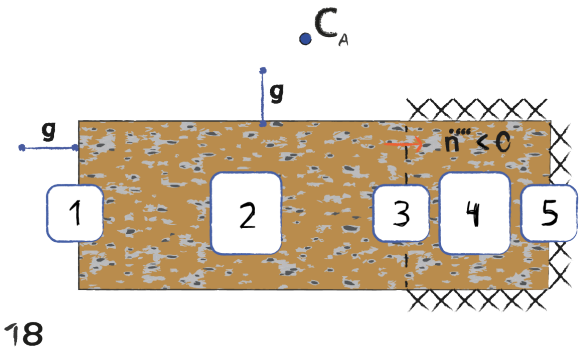
Concentration Profile: Task 18



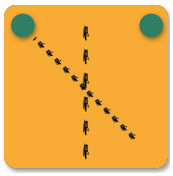
The image describes a body consisting of two sections. The right section is specified by a mass sink and impermeable boundaries, as the left section's boundaries are convective.

1 

Since mass is disspated within the body, convective mass flux points inwards the body. For boundary 1 that yields a negative concentration gradient in order to satisfy Fick's law.

2 

As mass is transfered into the body by convection, mass flux inside the body increases towards the right, yielding a steeper slope in concentration profile.

3 

The transition is characterized by a smooth concentration profile, due to equal concentrations and diffusion coefficients.

4 

There is a mass sink within this section, causing a higher mass flux towards the left and therefore a steeper gradient.

5 

Due to an impermeable boundary, mass flux and such the concentration gradient vanish at the right.