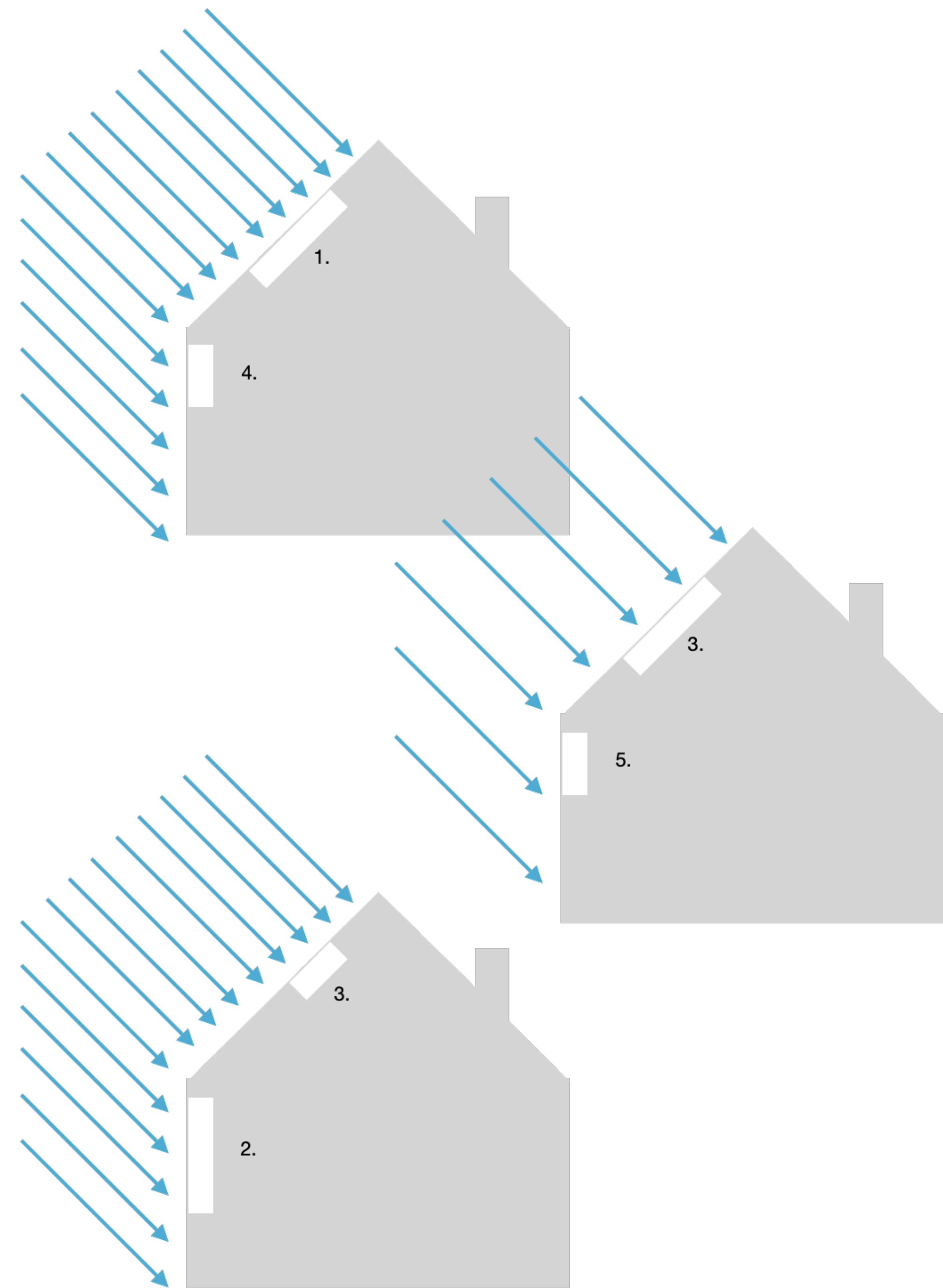# Flux Concept

Rain is falling through six open windows.
- Large windows have twice the area as the small windows.
- Heavy rain is twice as strong as the light rain.
- Numbers near windows rank the amount of rain from largest to smallest.

**a)** Come up with an equation that describes the amount of rain per second coming into the room in all six cases.

We can consider the rain passing through the windows as flux, i.e. an amount of something passing through an area.

# Electric Flux

- Net number of field lines going through a surface.
- Direction of the electric field and the orientation of the surface important:

Electric field

$$\Phi_E = \vec{E} \cdot \vec{A} = EA \cos \theta$$

- Area vector $\vec{A}$ : magnitude of a surface area; direction of the surface normal $\hat{n}$