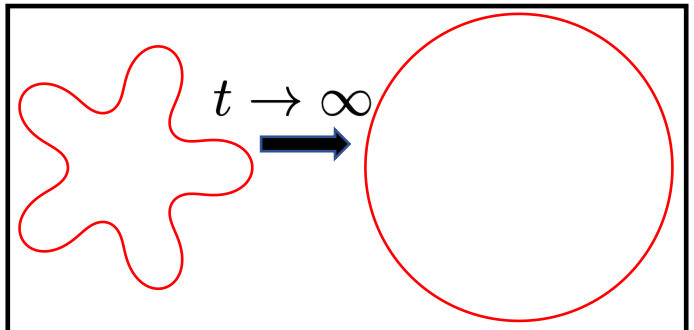
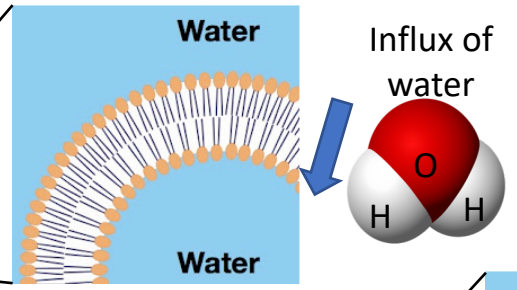
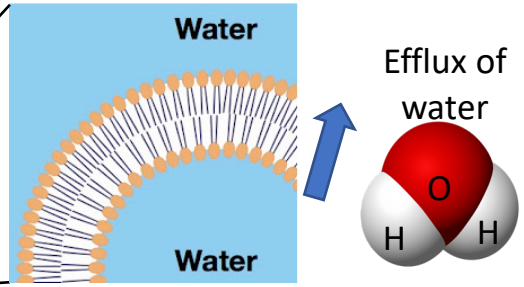


(b): A starfish vesicle at t=0 relaxes and swells to a circle.

Quiescent Flow



(a): A semi-permeable vesicle (permeable only to water) immersed in a viscous fluid.



Shear Flow

$\dot{\gamma} = 2 \times 10^{-5}\,\mathrm{m/s}$ $\dot{\gamma} = 2 \times 10^{-4}\,\mathrm{m/s}$

$\dot{\gamma} = 2 \times 10^{-3}\,\mathrm{m/s}$ $\dot{\gamma} = 2 \times 10^{-2}\,\mathrm{m/s}$

(c): A vesicle in a shear flow tank treads with a final reduced area and inclination angle that depend on the flow rate.

Confinement in a closely fit channel

$U_{\max} = 1.0 \times 10^{-3}\,\mathrm{m/s}$

(d): A vesicle in a stenosed geometry loses 6% of its fluid volume.

Confinement in a contracting channel

$U_{\max} = 1.8 \times 10^{-5}\,\mathrm{m/s}$

(e): A vesicle passing repeatedly through a slit geometry loses close to 50% of its fluid volume.