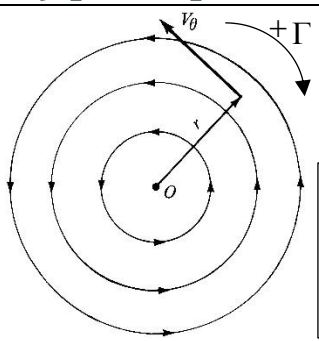
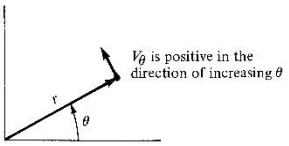
(KEY CONCEPT) [B-3-7]

Vortex (irrotational: zero vorticity) flow with magnitude Γ
(Γ is a "**circulation**" of flow field)

$$\psi = \frac{\Gamma}{2\pi}\ln r$$

$$\phi = -\frac{\Gamma}{2\pi}\theta$$





Circulation (Γ) is defined **positive in CW** (Clockwise) direction, while the tangential velocity (V_θ) is defined **positive in CCW** (Counter Clockwise) direction.

Potential flow field simulation (source: J.D. Anderson "Fundamentals of Aerodynamics" 2016)