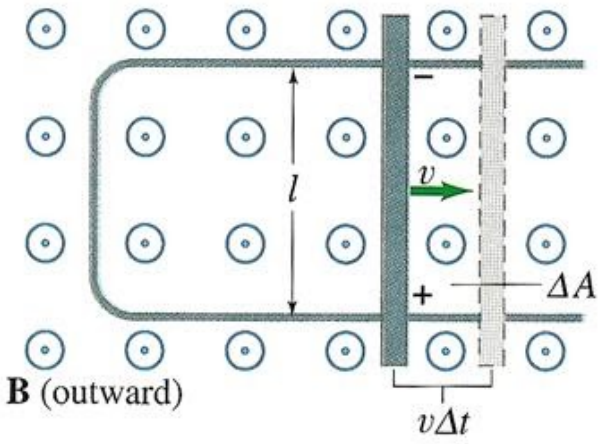
Physics 12 Section 21-3
EMF Induced in a Moving Conductor

1. For a straight conductor

For a single straight wire

FIGURE 21–9 A conducting rod is moved to the right on a U-shaped conductor in a uniform magnetic field **B** that points out of the paper.



If the B is constant and A changes then

$$\mathcal{E} = \frac{BlvΔt}{Δt}$$

Example: An airplane travels 100km/h in a region where the Earth's magnetic field is 5.0×10^{-5} T and is nearly vertical. What is the

potential difference induced between the wing tips that are 70m apart?