Answer on Question #81070, Physics / Electromagnetism

Question:

A Plane travelling towards west at speed of 1800 km/hour.what is the voltage difference developed between the ends of wings having a span of 25 meter, if the earth magnetic field at the location has a magnitude of 5×10^2 T and the dip agle is 30°

Solution:

The voltage difference $U = El = vB_v l = v \cdot B \cdot \cos 30 \cdot l = \frac{1800 \cdot 5 \cdot 10^{-5} \cdot 0.87 \cdot 25}{3.6} = 0.54$ (V).

The answer:

The voltage difference $U = El = vB_v l = v \cdot B \cdot \cos 30 \cdot l = \frac{1800 \cdot 5 \cdot 10^{-5} \cdot 0.87 \cdot 25}{3.6} = 0.54$ V, because the correct magnetic field induction has a magnitude of 5×10^-5 T