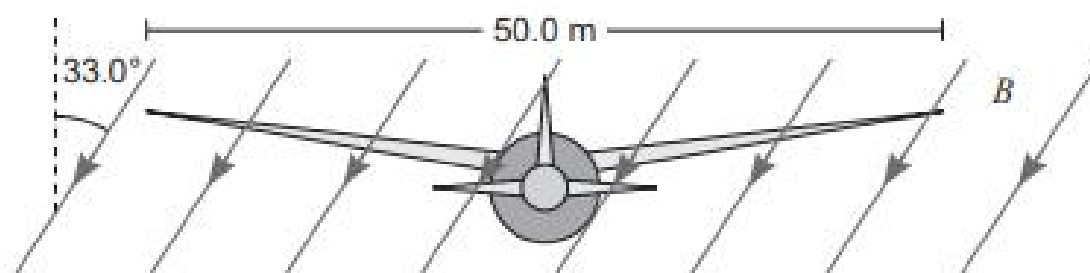


**Question 5****(5 marks)**

An aircraft with a wingspan of 50.0 m flies due east parallel to the Earth's surface. The Earth's magnetic field strength at that location is  $5.84 \times 10^{-5} \text{ T}$  and it makes an angle of  $33.0^\circ$  to the vertical. The aircraft is travelling at  $7.20 \times 10^2 \text{ km hr}^{-1}$ .



- (a) Using the appropriate component of the magnetic field, calculate the electromotive force (EMF) induced between the ends of the aircraft's wings. (4 marks)

Answer: \_\_\_\_\_ V

- (b) A wire runs between the ends of the wings, parallel to each wing, so as to set up a complete circuit. A sensitive ammeter is placed in the circuit. If the total resistance of the circuit is  $1.78 \Omega$ , what will be the reading on the ammeter? (1 mark)

Answer: \_\_\_\_\_ A