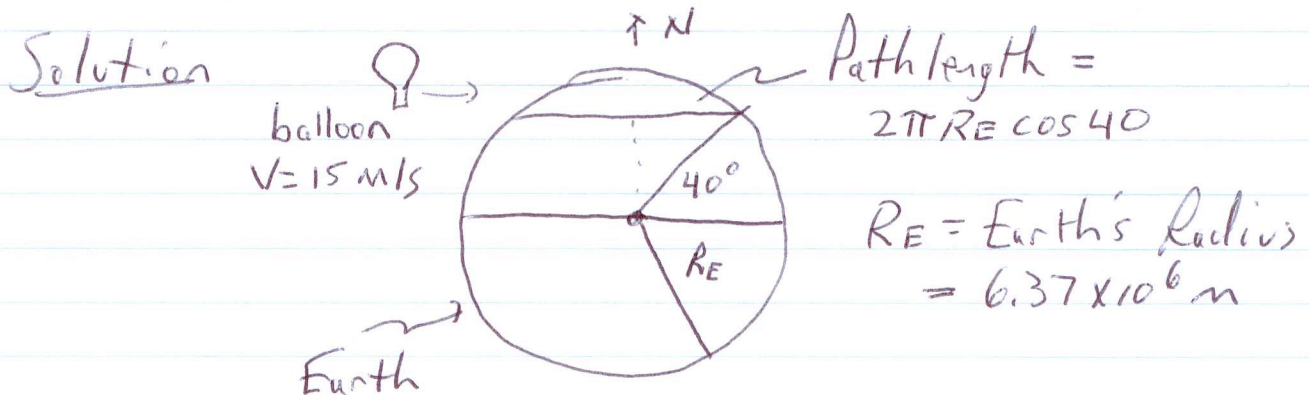


[Write only on one side of the paper. OK to use Computer also.]

Homework Solution Example

Problem 1.9 How many days would it take for a hot air balloon going eastward along $40^\circ N$ at 15 m/s to circumnavigate the globe?

★ [Note: It is not necessary to restate the problem unless you want to do so.]



★ [Note: Make a drawing if possible. Define Symbols]

Use symbols, then numbers

$$\text{time} = \frac{\text{Path length}}{\text{Speed}} = \frac{2\pi R_E \cos 40}{v}$$
$$= \frac{2\pi \cdot 6.37 \times 10^6 \text{ m} \cdot 0.766}{15 \text{ m/s}} = 2.05 \times 10^6 \text{ s}$$

$$\text{time} = 23.7 \text{ days}$$

★ [Note: Circle your result]

Interpretation: $15 \text{ m/s} = 33.6 \text{ mph}$. Since the balloon is an air tracer, this problem gives a rough idea of how long it takes for wind to circumnavigate as well, close to our latitude.

[Always interpret your solution. This is as important as the result.]