

Mt. Everest Adiabatic Lapse Rate

Name / Date

Directions: Use the data you recorded in the *Perpetual Planet Data Table* and follow the steps below to see how the data calculates compared to average outlined by the adiabatic lapse rate.

Step 1: Calculate the difference between the stations elevations.

$$\begin{array}{r} \text{_____} \\ \text{Base Camp} \end{array} - \begin{array}{r} \text{_____} \\ \text{Phortse} \end{array} = \text{_____}$$

$$\begin{array}{r} \text{_____} \\ \text{Camp II} \end{array} - \begin{array}{r} \text{_____} \\ \text{Base Camp} \end{array} = \text{_____}$$

$$\begin{array}{r} \text{_____} \\ \text{South Col} \end{array} - \begin{array}{r} \text{_____} \\ \text{Camp II} \end{array} = \text{_____}$$

$$\begin{array}{r} \text{_____} \\ \text{Balcony} \end{array} - \begin{array}{r} \text{_____} \\ \text{South Col} \end{array} = \text{_____}$$

Step 2: Calculate the difference between average temperatures at each station elevations.

$$\underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

Base Camp Phortse

$$\underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

Camp II Base Camp

$$\underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

South Col Camp II

$$\underline{\hspace{2cm}} - \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

Balcony South Col

Step 3: Average the differences between average temperatures at each station elevations.

$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} / 4 = \underline{\hspace{2cm}}$$

Step 4: Does this value approximate the adiabatic lapse rate which states that the temperature decrease by approximately one degree Celsius for every 100 meters (or approximately one degree Fahrenheit for every 150 feet) gained in elevation?
