Name _____ Regents Earth Science
Date _____ Period ____

Lab # 2: Graph Analysis

Introduction: Constructing and interpreting graphs are two skills which are very important for science. This lab reinforces graphing skills with an emphasis on rate of change.

Objective: You will practice graph construction and interpretation in this lab.

Vocabulary

Rate of Change –

Cyclic relationship –

Give an example:

Direct relationship –

Inverse relationship –

Procedure:
Answer questions on the following pages and write your answers on the report sheet below.
Be sure to **label units** for all numerical answers.

Report Sheet

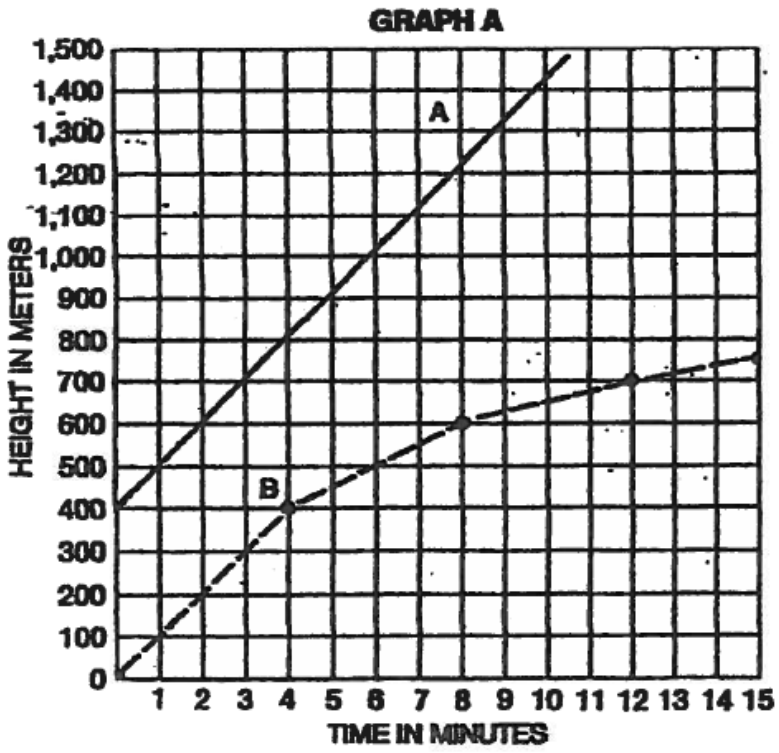
Part A

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

Part B

1. _____
2. _____
3. _____
4. _____
5. _____

PART A: Base your answers to the following questions on Graph A. It represents the flight of two weather balloons that were released from different locations.



1. Was the altitude of the balloons increasing or decreasing as shown by lines A and B?
2. During the first four minutes (time 0 and time 4), how many meters did A rise?
3. During the first four minutes (time 0 to time 4) how many meters did B rise?
4. During the first four minutes, what was the rate of increase for the balloon represented by Line A?
5. During the first four minutes, what was the rate of increase for the balloon represented by Line B?
6. What was the rate of change along line A from time 4 minutes to time 8 minutes?
7. What was the rate of change along line B from time 4 minutes to time 8 minutes?
8. Do lines A and B show a direct or an inverse relationship between altitude and time?

DISCUSSION QUESTIONS: ***(Answer in Complete Sentences)***

I. Look at Graph A: What happened to the rate of change along Line A from 0 to 8 minutes? What about Line B? How could you use clear and scientific language to describe the difference?

II. Based on the rate of change of Line A, can you predict what altitude the weather balloon will reach at 15 minutes? _____ What is the altitude? _____

Can you predict the altitude of weather balloon B as easily as balloon A? _____ Explain!

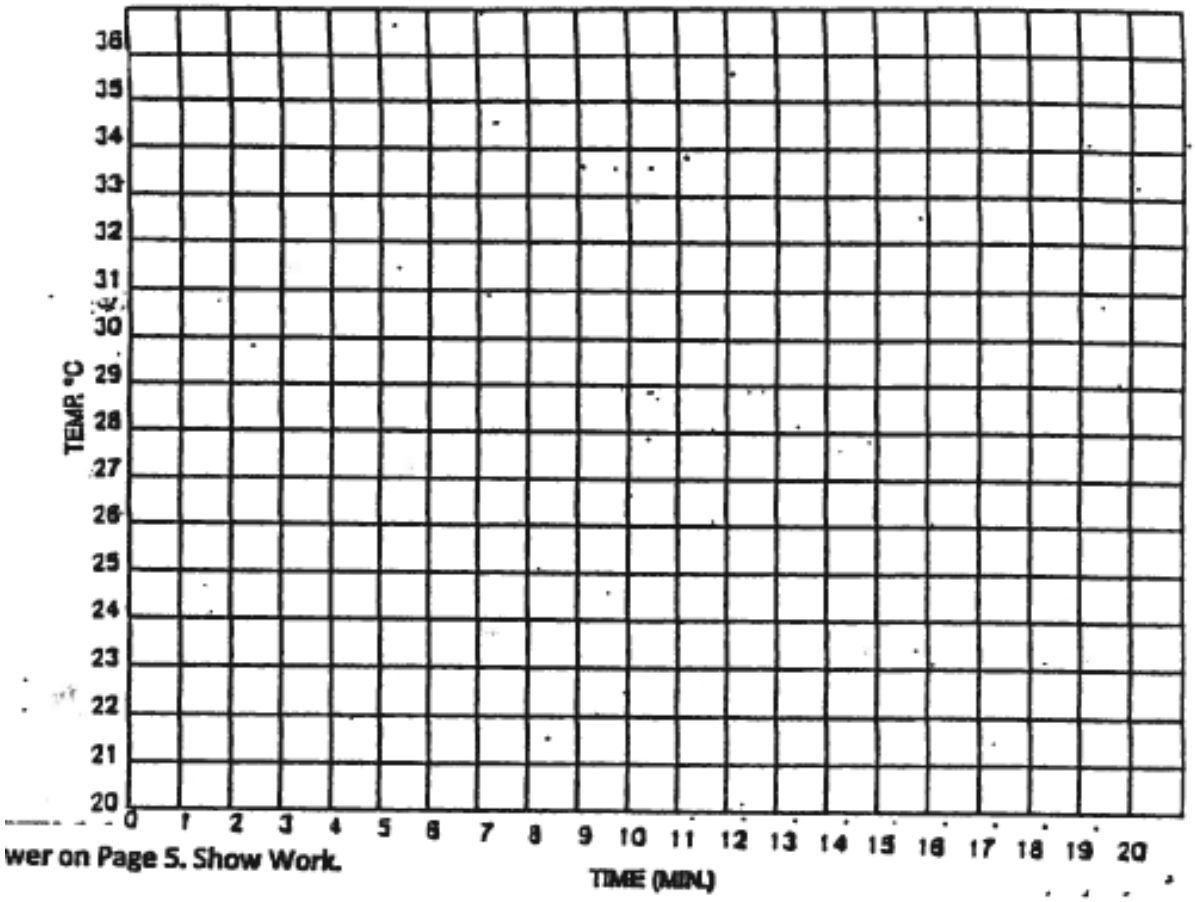
PART B: A cup of hot water was left standing on a lab table. Temperature was measured and recorded at one-minute intervals. Plot the given data on Graph B. Be sure to completely label each axis. Answer the questions on the Report Sheet.

NOTE: Time is in minutes and temperature is in degrees Celsius.

TIME (MIN.)	0	1	2	3	4	5	6	7	8
TEMP. °C	36.0	32.5	30.5	29.0	28.0	27.0	26.0	25.5	24.5

TIME (MIN.)	9	10	11	12	13	14	15
TEMP. °C	24.0	23.5	23.2	23.0	23.0	23.0	23.0

GRAPH B



wer on Page 5. Show Work.

1. Did temperature increase or decrease with time?
2. Calculate the rate of temperature change from time 0 to time 4.
3. Calculate the rate of temperature change from time 4 to time 8.
4. Does this graph show a direct or inverse relationship?

DISCUSSION QUESTIONS: ***(Answer in Complete Sentences)***

III. Describe the condition which exists for time and temperature between 12 and 15 minutes in Graph B.

IV. What general appearance does a graph have if the dependent variable does not change with time at all?