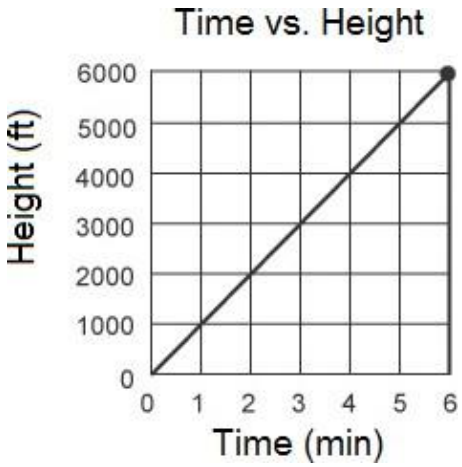
Slope as a Rate of Change Worksheet

1. The following represents the graph for a helium balloon's flight.



a. Determine the rate of change of the graph.

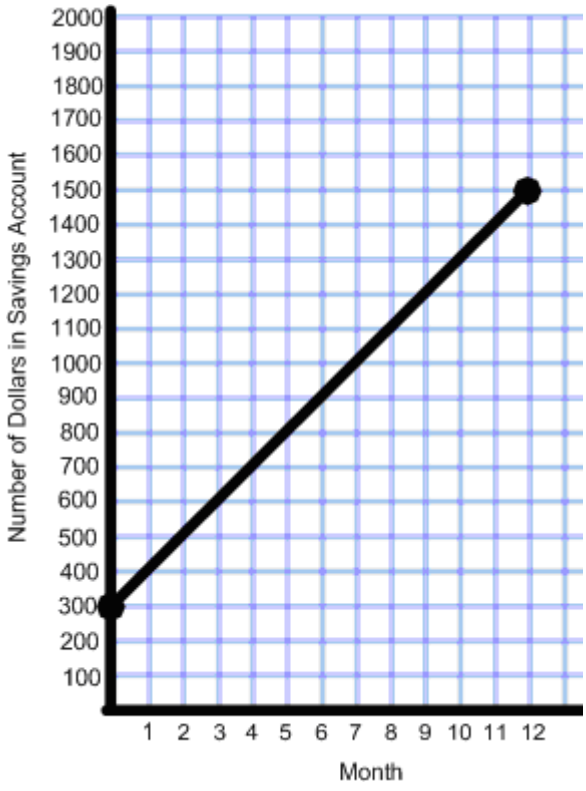
b. What does this slope (rate of change) mean?

c. When is the balloon at 5000 ft? Show this on your graph. _____

d. How high is the balloon off the ground at 2 minutes? Show this on your graph

e. Although not on the graph, when will the balloon reach 10,000 feet? Show your reasoning

2. The following represents the balance in Brady's savings account.



a. Find the slope of the graph.

b. What does the slope represent as a rate of change?

c. How much did Brady deposit when he opened the account?

d. At this rate how much money will Brady have in his account after 15 months. Show your reasoning.

e. If Brady deposited $500 to begin with, but continued to deposit the some amount each month what would this graph look like? Sketch it on the graph.

f. If Brady deposited $300 initially, but spent it all in five months show this on the graph?

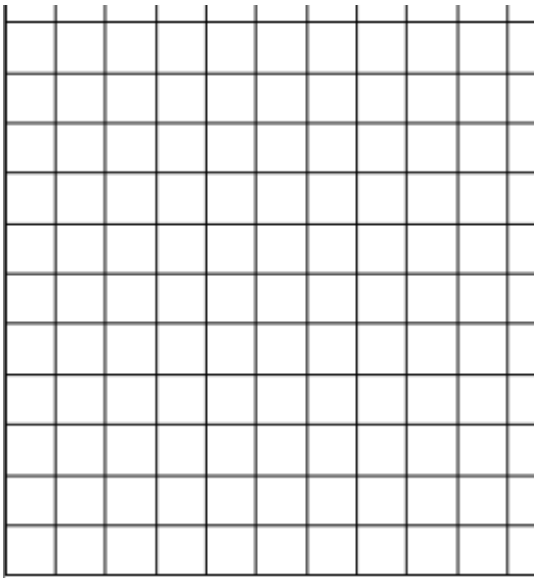
g. What would the slope of this line be? What does the negative sign indicate?

3. Rojen makes $7 per hour babysitting. Create a table of values and graph for this scenario

a. Find the rate of change of the graph.

b. What does it represent?

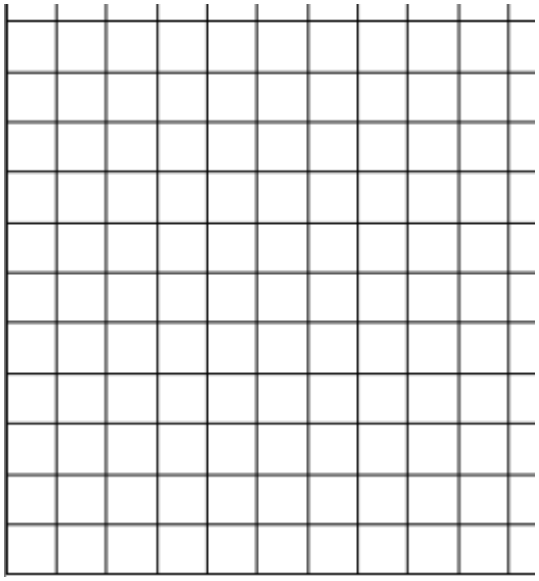
Time (h)	Money Made ($)
0	
1	
2	
3	
4	
5	



4. If it costs $25 to rent a car and 0.10 cents per kilometer drive create a graph for the scenario. **HINT:** Even if you do not drive the car off the lot it will still cost you $25.

a. Find the rate of change of this graph.

Distance (Km)	Cost ($)
0	25
10	
20	
30	
40	
50	



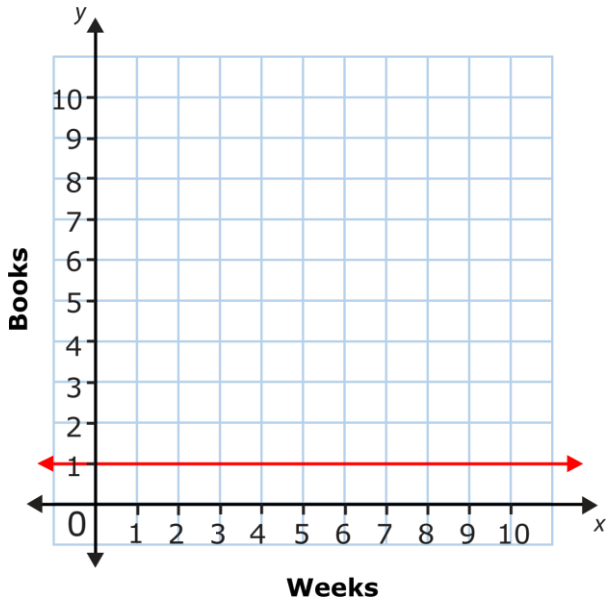
b. What does it represent?

c. What is the value on the y-axis? How does it relate to the scenario?

5.a. What is the slope of this graph?

b. Interpret this slope as a rate of change.

c. Explain this rate of change in words.



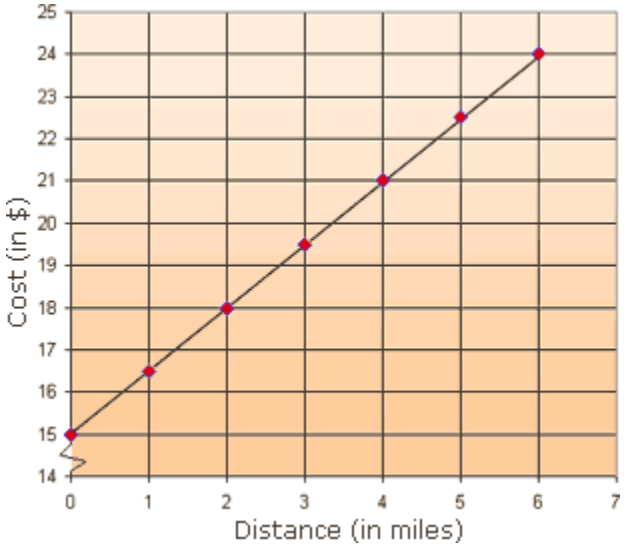
d) How many books has this person read in:
a. 2 weeks b. 8 weeks

6.a. What is the slope of this graph?

b. Interpret the slope as a rate of change.

c. What is the cost if the distance is zero?

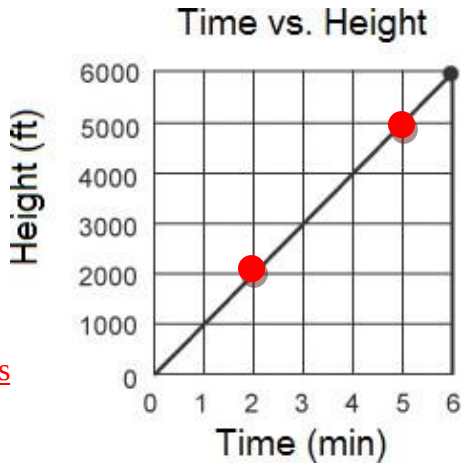
d. Create a scenario to match this graph.



Slope as a Rate of Change Answer Key

1. The following represents the graph for a helium balloon's flight.

a. Determine the rate of change of the graph.



The rate of change is 1000.

b. What does this slope (rate of change) mean?

The rate of change means the balloon rises 1000 feet every minute.

c. When is the balloon at 5000 ft? Show this on your graph. At 5 minutes

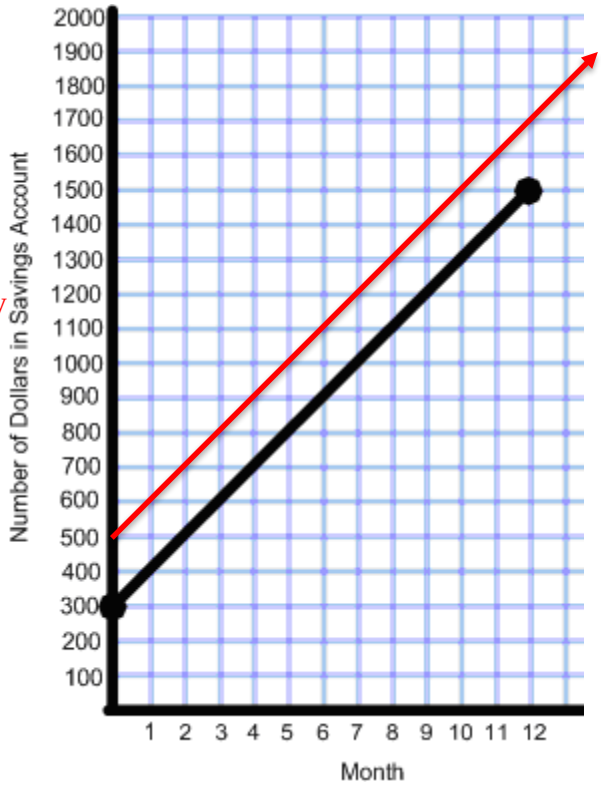
d. How high is the balloon off the ground at 2 minutes? Show this on your graph

The balloon is 2000 feet off the ground at 2 minutes.

e. Although not on the graph, when will the balloon reach 10,000 feet? Show your reasoning

The balloon will reach 10,000 feet at 10 minutes.

2. The following represents the balance in Brady's savings account.



a. Find the slope of the graph.

The slope of the graph is 400.

b. What does the slope represent as a rate of change?

The slope means that the money in Brady's account increases by $100 every month.

c. How much did Brady deposit when he opened the account?

Brady deposited $300 when he opened the account.

d. At this rate how much money will Brady have in his account after 15 months. Show your reasoning.

Brady will have $1800 in his account after 15 months.

e. If Brady deposited $500 to begin with, but continued to deposit the some amount each month what would this graph look like? Sketch it on the graph.

(See red line on graph)

3. Rojen makes $7 per hour babysitting. Create a table of values and graph for this scenario

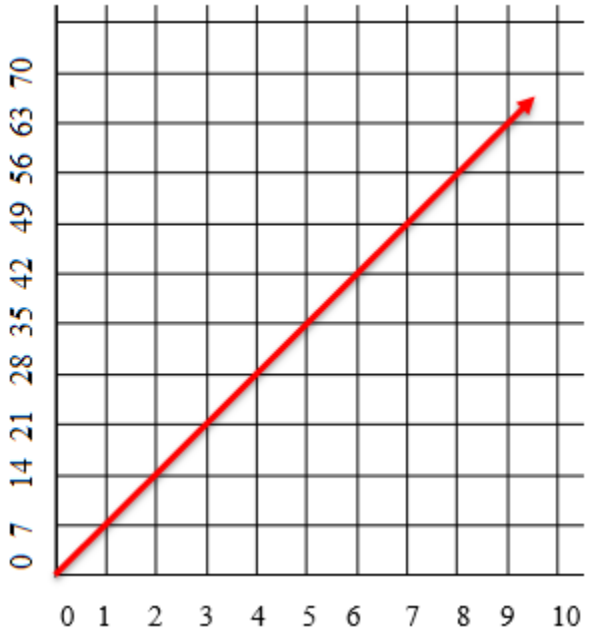
a. Find the rate of change of the graph.

The rate of change is 7.

b. What does it represent?

The rate of change represents that Rojen makes $7 for every hour he babysits.

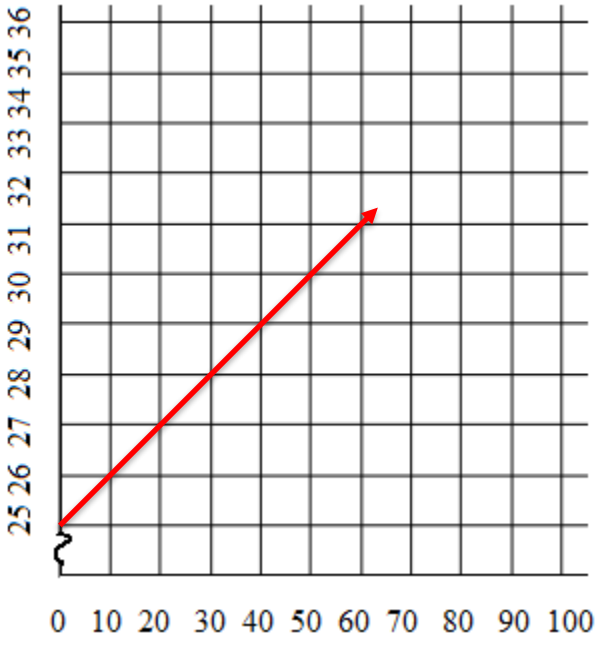
Time (h)	Money Made ($)
0	0
1	7
2	14
3	21
4	28
5	35



4. If it costs $25 to rent a car and 0.10 cents per kilometer drive create a graph for the scenario. **HINT:** Even if you do not drive the car off the lot it will still cost you $25.

a. Find the rate of change of this graph.

Distance (Km)	Cost ($)
0	25
10	26
20	27
30	28
40	29
50	30



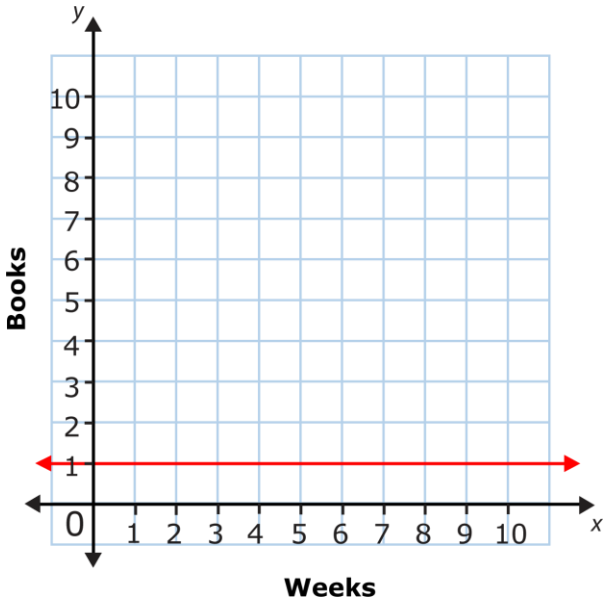
b. What does it represent?

The rate of change means that it costs 10 cents per kilometer driven to rent a car.

c. What is the value on the y-axis? How does it relate to the scenario?

The value on the y-axis is 25. It means that there is an additional flat cost to rent the car, which is $25.

5a. What is the slope of this graph?



The slope of the graph is 0.

d. Interpret this slope as a rate of change.

The rate of change is 0 books per week.

e. Explain this rate of change in words.

A rate of change of 0 means that the number of books the person has read does not change.

d) How many books has this person read in:
a. 2 weeks b. 8 weeks

The person has read 1 book in two weeks. The person still has only read 1 book in 8 weeks.

6a. What is the slope of this graph?

The slope of this graph is $\frac{3}{2}$.

e. Interpret the slope as a rate of change.

The rate of change is $3 for every two miles, or $1.50 per mile.

f. What is the cost if the distance is zero?

The cost is $15 if the distance is zero.

g. Create a scenario to match this graph.
Answers may vary

A taxi service charges $15 for a pick-up fee and $1.50 per mile driven.