

ANSWERS TO QUESTIONS FOR STUDENTS:

Fictitious example of Johnny Steele's account

Johnny Steele opens a bank account with birthday money totaling \$50. He adds \$10 per week.

Week	Money
0	\$50
1	\$60
2	\$70
3	\$80
4	\$90

What is the change of money using the table for Johnny Steele?

$60 - 50 = 10$

What is the change of weeks using the table for Johnny Steele?

$1 - 0 = 1$

What is the overall change in money as the weeks change?

10 divided by 1 is 1 .The rate of change is \$10 per week.

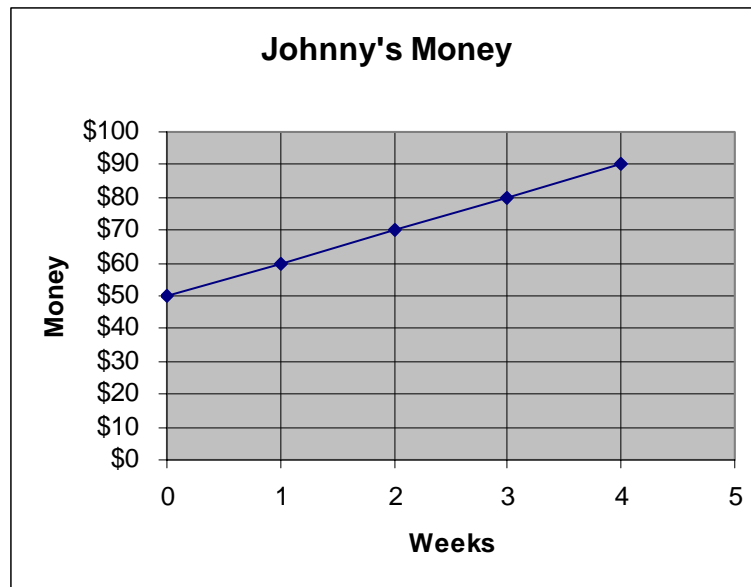
Does the overall change stay constant from week to week? Explain.

Yes. The same amount (\$10) is being added every week.

Graphing

Plot the coordinate points from the table onto the graph. Connect the points with a line.

Fictitious example of Johnny Steele's account



How can you tell the rate of change is constant by looking at the graphed line?

There is a constant rate of change. For every week that goes by, 10 more dollars are added.

$$\text{Slope} = \text{Rate of Change} = \frac{\text{change in money}}{\text{change in weeks}}$$

How is the “weeks” column changing?

The number in the “weeks” column is increasing by one.

How is the “money” column changing?

The number in the “money” column is increasing by 10.

How does the money change as the weeks change?

The amount of money increases by \$10 as the weeks increase by one.

Fictitious Example of Jill's Account

Weeks	Money
0	10
2	50

What story does the table tell about Jill's account?

The table shows that in a two-week time frame, Jill's money has increased by \$40.

How would you find the rate of change representing Jill's account?

**You would find the change in money .
change in weeks**

To find the overall change of money as the weeks change, divide the change in money over the change in weeks.

Using the example chart above, we would take $50 - 10 = 40$ to get the change in money.

To calculate the change in weeks, we take $2 - 0 = 2$.

Finally, we divide the change in money (40) by the change in weeks (2).

To find the change of money as the weeks change, we would divide 40 by 2 and get 20 as the rate of change. This means that every week the money increases by 20 dollars.

How does the money change as the weeks change?

For every two weeks that goes by, the money increases by \$40.

For every week that goes by, the money increases by \$20.

ASSESSMENT OPTIONS: (constructed response)

You have \$211. Each week you earn \$20. Describe how your money would grow.

The beginning week you will have \$211. Each week you will earn \$20. Your total after the first week would be $\$211 + \20 , or $\$231$. The second week you will have $\$231 + \20 , or $\$251$. You would add \$20 dollars to your total every week after that.

Week	Money
0	\$211
1	\$231
2	\$251
3	\$271
4	\$291

.....and so on

You have \$96. Everyday you spend \$3 at lunch. How many days will it take before you have no money?

This illustrates that your money would decrease (subtracting \$3) each day. Since division is repeated subtraction, we need to know how many times \$3 can be divided into \$96 dollars. Therefore, 96 divided by 3 is 32. . On the 32nd day you will be out of money.

EXTENSIONS:

You have \$50 in the bank. You earn \$15 per week with lawn care service. You want to buy an X-Box 360 that costs \$299. Tax in Michigan is 6% (or .06 on one dollar). How many weeks before you can afford the game?

18 weeks. The game with tax is \$316.94 ($\299×1.06). Subtract \$50 (money in the bank) from the \$316.94. The ending balance is \$266.94. Divide that by 15 and the result is 17.796, or approximately 18 weeks.