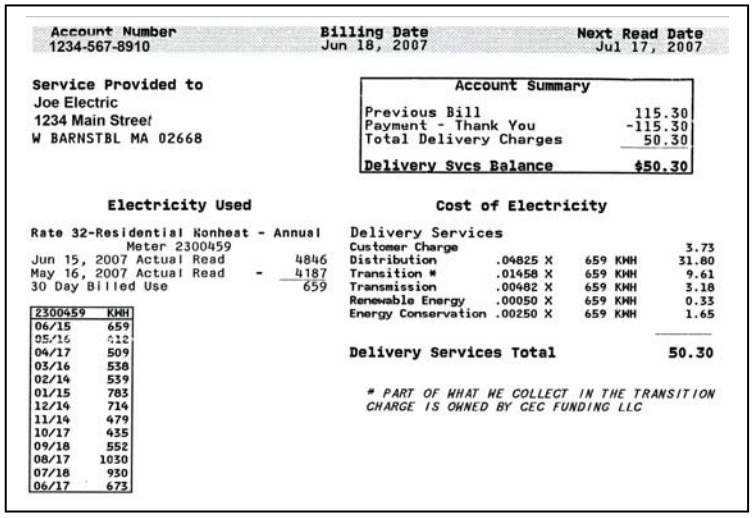


Account Number 1234-567-8910 | Billing Date Jun 18, 2007 | Next Read Date Jul 17, 2007

Service Provided to
Joe Electric
1234 Main Street
W BARNSTBL MA 02668

Account Summary

Previous Bill	115.30
Payment - Thank You	-115.30
Total Delivery Charges	50.30
Delivery Svcs Balance	$50.30

Electricity Used

Rate 32-Residential Nonheat - Annual
Meter 2300459

Jun 15, 2007 Actual Read		4846
May 16, 2007 Actual Read	-	4187
30 Day Billed Use		659

2300459	KWH
06/15	659
05/16	412
04/17	509
03/16	538
02/14	539
01/15	783
12/14	714
11/14	479
10/17	435
09/18	552
08/17	1030
07/18	930
06/17	673

Cost of Electricity

Delivery Services

Customer Charge			3.73
Distribution	.04825 X	659 KWH	31.80
Transition *	.01458 X	659 KWH	9.61
Transmission	.00482 X	659 KWH	3.18
Renewable Energy	.00050 X	659 KWH	0.33
Energy Conservation	.00250 X	659 KWH	1.65
Delivery Services Total			50.30

* PART OF WHAT WE COLLECT IN THE TRANSITION CHARGE IS OWNED BY CEC FUNDING LLC

Every time we turn on a light, drive our car to the store, or turn up the thermostat to heat our home, we create carbon dioxide. That's because all of these sources of energy usually involve the burning of fossil fuels, which create carbon dioxide as a by-product.

Carbon dioxide is a 'greenhouse' gas. As its concentration increases in the atmosphere, the average temperature of the world increases too. This is called Global Warming, and scientists have tracked this steady change for over 150 years.

The sample electric bill above might look like the one that your family gets each month. The table below gives the number of kilograms of carbon dioxide produced by an average US home as the amount of electrical power use changes (measured in kilowatt hours: kWh). The family also produces 250 kilograms of carbon dioxide each month from driving the family car and heating the home.

P	700	800	900	1000	1100
K	600	650	700	750	800

Problem 1 – Graph the data in this table with P the power used in kWh on the horizontal axis and K the total monthly carbon dioxide produced in kilograms on the vertical axis. Graph the data from P = 600 to 1200 and K = 500 to 900.

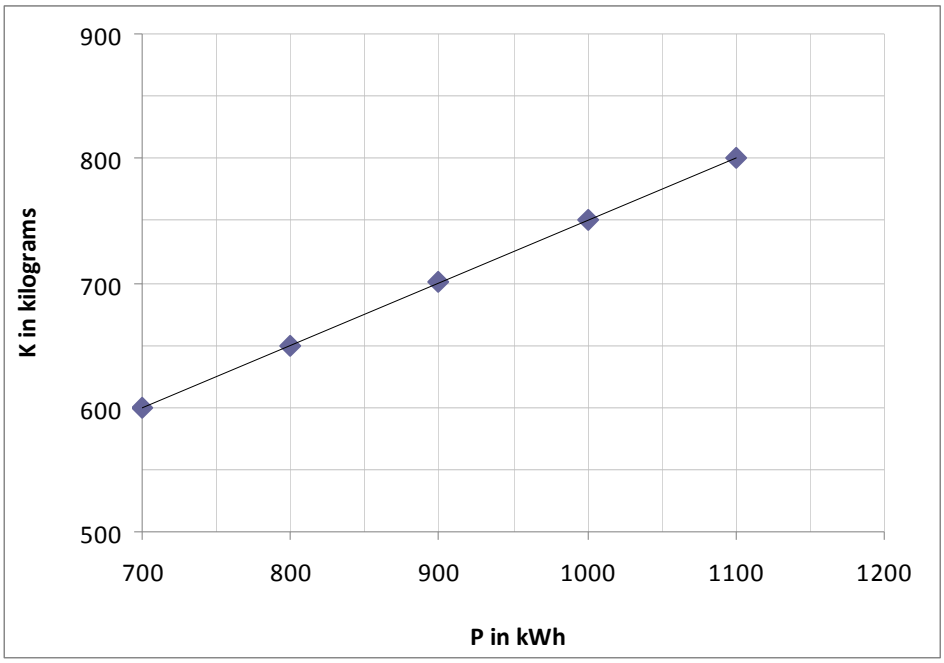
Problem 2 - What is the rate of change for the data in the graph?

Problem 3 – What is the linear equation that describes this data?

Problem 4 – What does the value for K at P=0 represent in terms of the homes carbon dioxide budget?

Note to Teacher: The conversion from kWh to kilograms of carbon dioxide is based on **a** value of 0.500 kg/kWh based on an average mix of fossil fuels and non-fossil fuels across North America. For example, if all your local electricity comes from hydroelectric or nuclear sources, the constant is 0.0 kg/kWh. If it is 100% fossil fuels then use 0.500 kg/kWh. For different states it can vary from 0.184 kg/kWh in California and New York, to 1.16 kg/kWh in Alaska.

Problem 1 – Graph the data in this table with P the power used in kWh on the horizontal axis and K the total monthly carbon dioxide produced in kilograms on the vertical axis.



Problem 2 - What is the rate of change for the data in the graph?
Answer: From the graph, the slope of the line is **0.5** and the units are kilograms/kWh.

Problem 3 – What is the linear equation that describes this data?
Answer: **K = 250 + 0.5P**

Problem 4 – What does the value for K at P=0 represent in terms of the homes carbon dioxide budget?
Answer: It means that even when the home is not using electricity, the family is still producing 250 kilograms per month from other activities such as driving a car or heating the home.