

**Lesson 7 Utility Consumption**

**Units**  
Single quantities.

How do utility companies know how many **units** customers consume, or use? The companies send meter readers regularly to determine consumption of utilities.

**Rule** The amount of water, gas, or electricity consumed is the difference between meter readings.

**EXAMPLE** These water meter readings were taken quarterly, or every 3 months.

	Year 1	Year 2
January	391	506
April	445	542
July	462	570
October	488	584

How many units were used from January to April in the first year? Subtract the earlier reading from the later reading.

$$\begin{array}{r}
 445 \text{ Later reading (April of year 1)} \\
 - 391 \text{ Earlier reading (January of year 1)} \\
 \hline
 54 \text{ Units used}
 \end{array}$$

**Cubic feet**  
Units used to measure volume.

A water unit equals a volume of 100 cubic feet. How many cubic feet of water were used from January to April in the first year?

$$\begin{aligned}
 \text{Number of units} \times 100 &= \text{number of cubic feet.} \\
 54 \times 100 &= 5,400 \text{ cubic feet.}
 \end{aligned}$$

**Exercise A** For each billing period, find the amount of water consumed in units and in cubic feet. Use the example readings shown above.

- 1) From April to July in year 1
- 2) From July to October in year 1
- 3) From October, year 1, to January, year 2
- 4) From January to April in year 2
- 5) From April to July in year 2
- 6) From July to October in year 2

Customers are billed for the number of units of water, gas, and electricity that they use.

**EXAMPLE** The Great Gas Company's rate is \$.75 per unit. A customer uses 200 units. How much is the bill?

Multiply.	\$ .75	Charge per unit
	<u>× 2 00</u>	Units used
	\$150.00	Total bill

**Exercise B** Find how many units of gas were used each month. Subtract consecutive meter readings listed below. Then find the total bill for each month. Multiply by a rate of \$.75 per unit.

		Units Used	Total
December	8917		
1) January	9265		
2) February	9402		
3) March	10054		
4) April	0195		
5) May	0316		
6) June	0451		
7) July	0465		
8) August	0499		
9) September	0528		
10) October	0571		

**Exercise C** Subtract consecutive electric meter readings to find the number of units of electricity used each month. Then find the total bill for each month. Multiply by a rate of \$.09 per unit.

		Units Used	Total
December	65183		
1) January	65836		
2) February	66433		
3) March	66995		
4) April	67611		
5) May	68184		
6) June	68700		
7) July	69336		
8) August	70202		
9) September	71875		
10) October	73245		

**Exercise D** Find the average number of units consumed for the following sets. Round each answer to a whole number.

1) 653, 597, 562, 616

2) 542, 506, 488, 445, 391, 366

3) 36, 18, 26, 17, 54, 25, 19

4) 29, 29, 46, 348, 137, 652, 262, 135, 14

5) 1267, 573, 555, 558, 670, 532, 552, 480, 509, 747

6) 566, 653, 597, 562, 616, 572