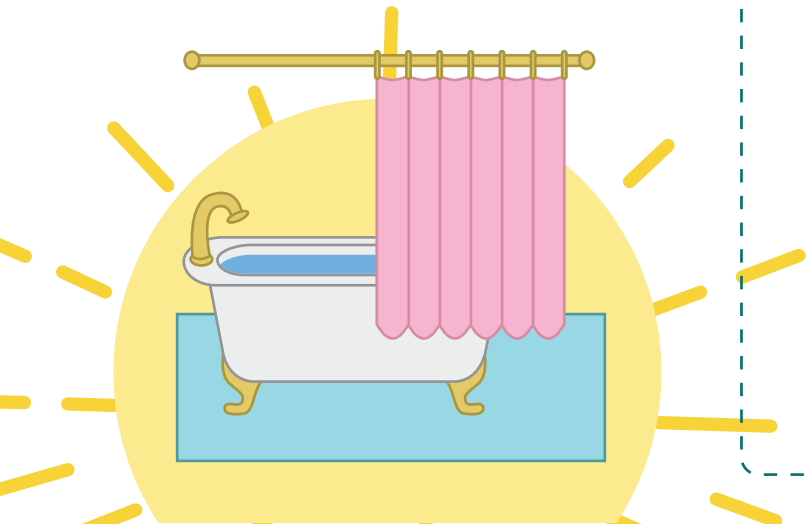
Speak Agent™

THE COST OF WATER

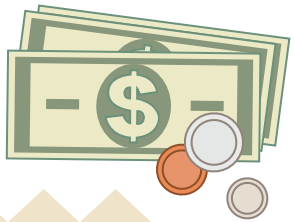
ALGEBRA

Every day you use water taking a shower, flushing the toilet, and washing your clothes and dishes. If you own or rent a home, you probably need to pay a water bill.

So, how much does it cost to use all that water?



1 WATER BILL



Find your family's water bill.
We provide a sample here so you can follow along.
But we'd like you to use your real water bill.

Sample Bill Details

WATER CHARGES	
6,000 gallons x $5.09 per 1,000 gallons	$30.54
SEWER CHARGES	
6,000 gallons x $6.80 per 1,000 gallons	$40.80
FEES	
Bay Restoration Fee	$15.60
Account Maintenance Fee	$16.66
Infrastructure Investment Fee	$12.49
TOTAL DUE	**$121.89**

2 FUNCTION RULE

Write a function rule.
The information below is a sample. Please use the rates and fees from your water bill. Then write your function.

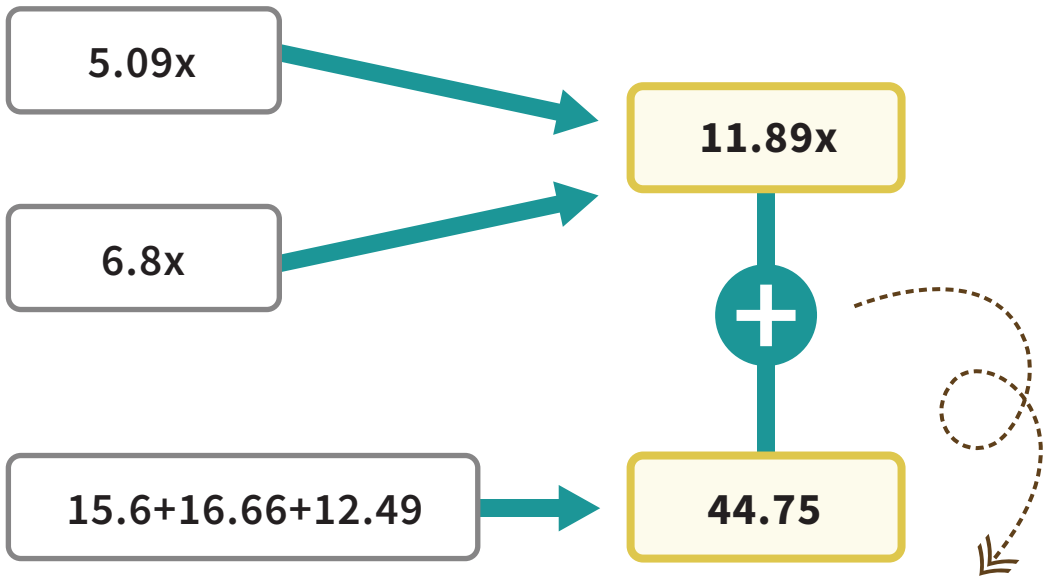
Sample Bill

WATER CHARGES
x* $5.09

SEWER CHARGES
x* $6.80

FEES
$15.60
$16.66
$12.49

HINT: x = how many 1,000s of gallons of water were used last month



Sample Function Rule: f(x) = 11.89x + 44.75

My Function Rule: f(x) = _____

3 CALCULATE

- Plug the x input value into your function rule and calculate. f(x) = ?

f(x) = _____

The variable x stands for the amount of water used last month.

The coefficient (the # that multiplies x) is in units of $ per 1,000 gallons.

If you used 5,000 gallons of water, x = 5000÷1000, so x = 5.

4 CHECK YOUR ANSWER

- Does your function output match the TOTAL DUE on your water bill?

If it doesn't, don't worry! Go through the steps again to see where you went wrong.

Try until you get it right.

5 FUNCTION TABLE

- **Create a function table.**
To keep it simple, use 1,000s of gallons as your unit of measurement. To create the table, calculate f(x) for any four values of x.

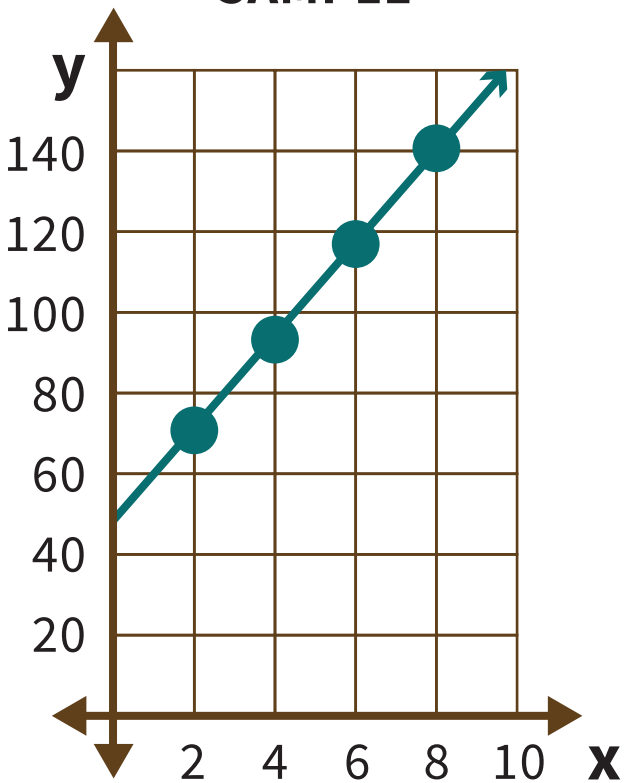
x	SAMPLE f(x)	YOUR f(x)
2	68.53	_____
4	92.31	_____
6	116.09	_____
8	139.87	_____

HINT: The SAMPLE uses the function rule f(x) = 11.89x + 44.75. Plug the values for x into YOUR function rule to fill in the right-hand column.

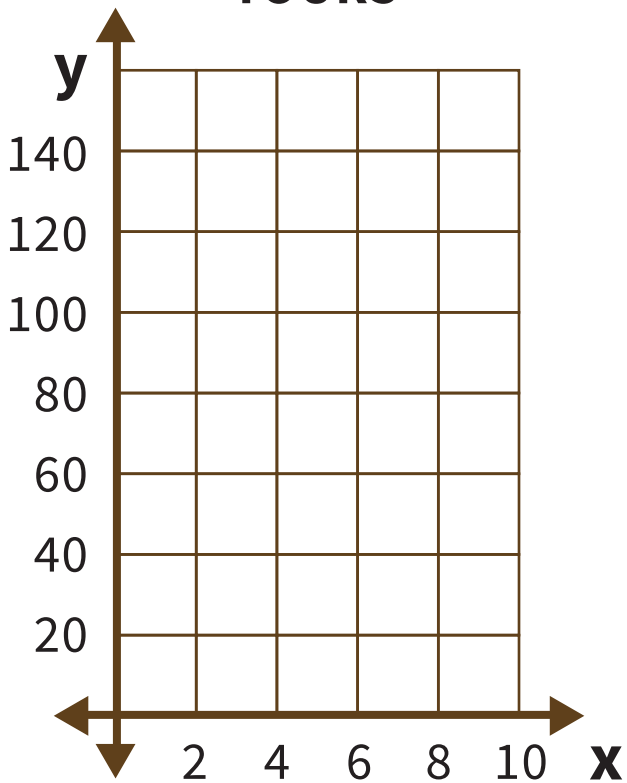
6 PLOT YOUR FUNCTION

Now plot the x and y coordinates on a coordinate plane.
The one on the left is our sample. Use the one on the right.

SAMPLE



YOURS



BONUS QUESTIONS

Is your function linear or non-linear?

What does that tell you about the relationship between water usage and cost?

LEARNING GOALS

- ☐ Write and evaluate a function that models a real-life situation.
- ☐ Then create a function table and graph your function.

UNIT: Linear Functions