Name: _____ Date:_____

Ms. Streffacio Class: _____

I can:

Do Now (3 minutes to complete):

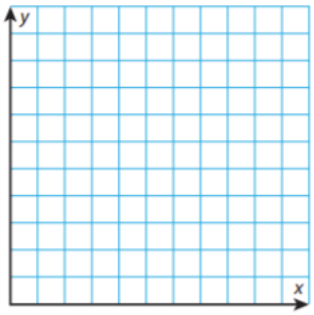
Do the data in this table show a function? If you switch the input and the output values, is it a function? Explain.

Input	3	3	5	5	6
Output	−3	2	4	5	6

Model (10 minutes) You Watch, Listen, Copy:

The table below shows the number of dog licenses issued in the town of Palmer over a 5-year period. On the blank graph to the right, label and number the axes. Then plot the ordered pairs.

Year (input)	1	2	3	4	5
Number of Dog Licenses Issued (output)	75	100	125	125	150

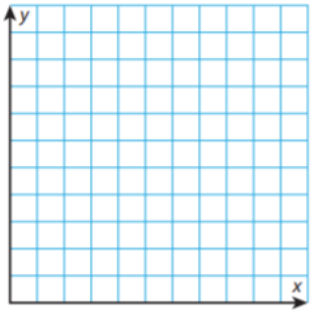


Describe the relationship between the input and the output values.

Check for Understanding- Did you understand the Model? (2 minutes) Teacher will check!

Dogs age faster than humans do. Some people claim that dog years are a function of human years, as shown in the table. On the blank graph to the right, label and number the axes. Then plot the ordered pairs.

Age in Human Years (input)	1	2	3	4	5
Age in Dog Years (output)	7	14	21	28	35



Describe the relationship between the input and output values.

We Do Together (10 minutes):

Are the following functions?

$y = x + 2$

x (input)	−2	−1	0	1	2
y (output)					

$y = 4x$

x (input)	−2	−1	0	1	2
y (output)					

Final Check for Understanding before I send you to Independent Practice! Teacher will Check (4 minutes):

Analyze Each molecule of water contains 2 hydrogen atoms and 1 oxygen atom. Complete the table. Is the number of hydrogen atoms a function of the number of oxygen atoms? Explain.

Oxygen Atoms (Input)	1	2	3	4
Hydrogen Atoms (Output)	2			

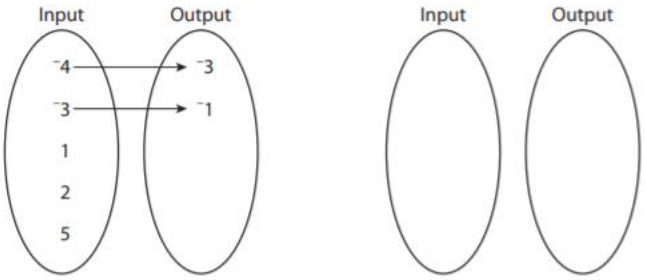
Independent Practice (on your own):

The table below shows a relation between x and y.

x	y
–4	16
–2	4
0	0
2	4
4	16
6	36

Susie said the relation above is also a function. Explain why Susie is correct or incorrect.

Arrange Use a diagram to represent a function. Put these numbers in the ovals to show ordered pairs that form a function: −4, −3, −3, −1, 1, 2, 5, 5, 6, 7. Complete the diagram that has been started. In the blank diagram, use the same numbers to show a different set of ordered pairs that form a function.



Put It Together Sean and Rachel were both born on April 17. When Sean was 4, his sister Rachel was 2.

Part A Write an equation that can be used to determine Rachel's age given Sean's age. Write an equation that can be used to determine Sean's age given Rachel's age.

Part B Complete the tables of values to show the relationship between their ages.

Sean's Age (input)	11	12	13	14	15	16
Rachel's Age (output)						

Rachel's Age (input)	1	2	3	4	5	6	7
Sean's Age (output)							

Part C Describe the relationships in the tables. Is either relationship a function? Explain.

Part D The problem states that when Sean was 4, Rachel was 2. Sean's age is twice Rachel's age. Can this also be a rule for the relationship between their ages? Why or why not?

Lina and Michele studied the data in the table. They each wrote an equation to represent the relationship between the number of miles and the number of hours ridden by a bicyclist.

Miles, m	Hours, h
27	3
45	5
18	2
54	6

Lina's equation: $m = 9h$

Michele's equation: $h = \frac{1}{9}m$

The teacher said that both equations were correct. Explain why.

Zach's car travels 21 miles on 1 gallon of gas. Write an equation to represent the relationship between the gas Zach's car uses and the distance he travels. Then solve the equation to see how far Zach travels on a trip if he uses 16 gallons of gas.

The table shows the number of concert tickets sold by five students. Is the relationship a function? Explain.

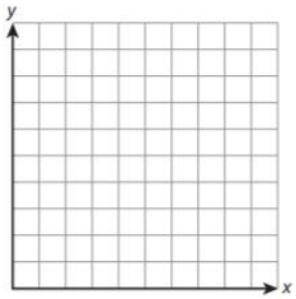
Student (input)	1	2	3	4	5
Tickets (output)	12	18	12	22	16

Vocabulary

function a rule that produces exactly one output for each input.

The table shows the number of calories in different numbers of servings of blueberries.

Servings (input)	1	2	3	4	5
Calories (output)	21	42	63	84	105



On the blank graph to the right, add a title and then label and number the axes. Then plot the ordered pairs on the graph.

Explain whether the relationship is a function. Can you represent the data with an equation? If so, write the equation.

Substitute values into the equation $y = x - 3$ to complete the table. Then state whether the equation represents a function. Explain your reasoning.

x (input)	−2	−1	0	1	2
y (output)					

Write a number from the box to complete the table of values to represent a function.

−3	−2	−1	0	1	2	3

Input	1	−2		0		3	
Output	−2	−3	−1	3	0	2	1

Does the equation $y = x$ represent a function? Explain why or why not.

Which linear functions below have the same rate of change as one another? Select all that apply.

A

x	y
−2	−21
6	−9
14	3

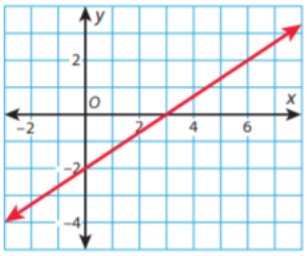
B $2y - 3x = 1$

C

x	y
−13	−7
−9	−4
−5	−1

D $y = \frac{3}{2}x$

E



Which equation defines a linear function?

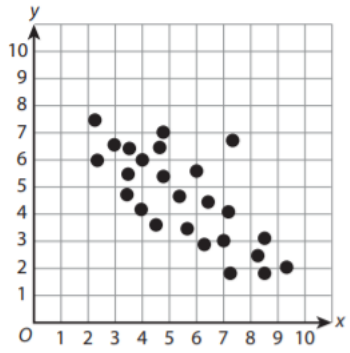
A $y = \frac{2}{4}x + 12$

B $y = x^2 + 4x - 6$

C $x^2 + y^2 = 16$

D $\frac{1}{x^2} + \frac{1}{y^2} = 4$

Which best describes the type of association shown in this scatter plot?



A no association

B non-linear association

C positive linear association

D negative linear association

Which pairs of variables would most likely have a positive association?

Choose all that apply.

A the age of a kitten and its weight

B temperature and sales of mittens

C temperature and sales of ice cream

D the height of students and their scores on a test

E the number of notebooks bought and the total cost

F the amount of time walking home and the current distance from home

The two-way table shows the results of a survey that asked students about their favorite fruit.

	Favorite Fruit				
	Apples	Bananas	Oranges	Grapes	Total
Girls	18	12	15	5	50
Boys	15	15	16	10	56
Total	33	27	31	15	106

Tell whether each statement is *True* or *False*.

a. Of the girls surveyed, 36% prefer apples. ☐ True ☐ False

b. Of those surveyed who prefer bananas, about 44% were boys. ☐ True ☐ False

c. The total number of girls surveyed is 50. ☐ True ☐ False

d. Of all students surveyed, about 25% prefer bananas. ☐ True ☐ False

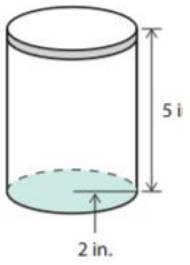
Tom is making strawberry jelly and is going to put it into the jar shown. About how much jelly will he need to fill the jar to 0.5 inch from the top? Circle the correct answer. (Use 3.14 for π, and round to the nearest whole.)

A 28 in.^{3}

B 57 in.^{3}

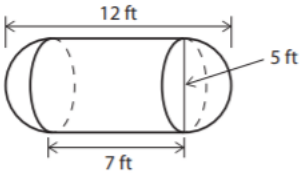
C 63 in.^{3}

D 127 in.^{3}



Isabelle chose **C** as the correct answer. How did she get that answer?

The propane storage tank shown is a cylinder with a half-sphere on each end.



Tell whether each statement is *True* or *False*.

a. The volume of the cylinder part of the tank is about 550 ft^3. ☐ True ☐ False

b. The volume of one of the half-spheres is about 65 ft^3. ☐ True ☐ False

c. The combined volume of the two half-sphere parts is less than the volume of the cylinder part. ☐ True ☐ False

d. The volume of the tank is about 202 ft^3. ☐ True ☐ False