Name _____ Date _____ Class _____

LESSON 3-2

Functions

Algebra Lab Recording Sheet: The Vertical-Line Test

For use with the Lesson Relations and Functions

Try This

Activity

Table 1	
x	***y***
−2	−5
−1	−3
0	−1
1	1
2	3
3	5

1. Look at the values in Table 1.

Is every *x*-value paired with exactly one *y*-value? _____

If not, what *x*-value(s) are paired with more than one *y*-value?

_____

2. Is the relation a function? Explain.

_____

3. Graph the points from the Table 1. Draw a vertical line through each point of the graph. Does any vertical line touch more than one point?

_____

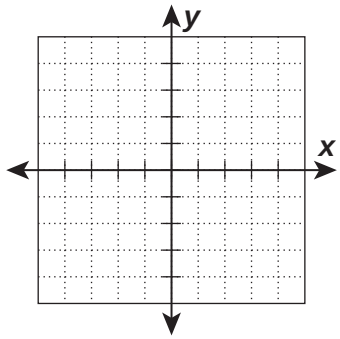


Table 2	
x	***y***
−2	−3
1	4
0	5
1	2
2	3
3	5

4. Look at the values in Table 2.

Is every *x*-value paired with exactly one *y*-value? _____

If not, what *x*-value(s) are paired with more than one *y*-value?

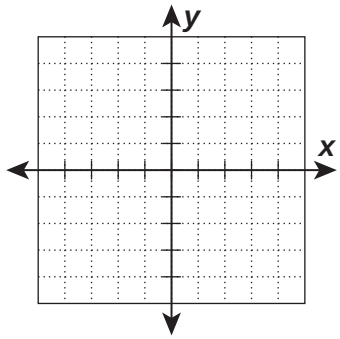
_____

5. Is the relation a function? Explain.

_____

6. Graph the points from the Table 2. Draw a vertical line through each point of the graph. Does any vertical line touch more than one point?

_____



Name _____ Date _____ Class _____

LESSON 3-2

Functions

Algebra Lab Recording Sheet: The Vertical-Line Test continued

7. What is the *x*-value of the two points that are on the same vertical line?

_____ Is that *x*-value paired with more than one *y*-value? _____

8. Write a statement describing how to use a vertical line to tell if a relation is a function. This is called the vertical-line test.

_____

_____

_____

9. Why does the vertical line test work?

_____

_____

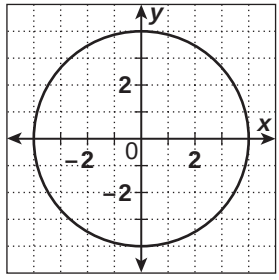
Try This

Use the vertical line test to determine whether each relation is a function. If a relation is not a function, list two ordered pairs that show the same *x*-value with two different *y*-values.

1. Is the relation a function? _____

If a relation is not a function, list two ordered pairs that show the same *x*-value with two different *y*-values.

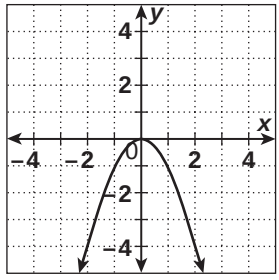
_____



2. Is the relation a function? _____

If a relation is not a function, list two ordered pairs that show the same *x*-value with two different *y*-values.

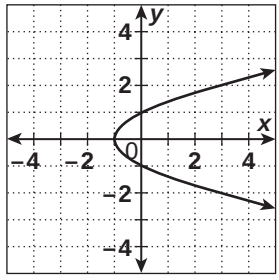
_____



3. Is the relation a function? _____

If a relation is not a function, list two ordered pairs that show the same *x*-value with two different *y*-values.

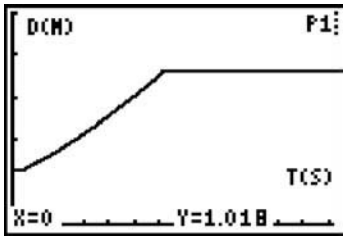
_____



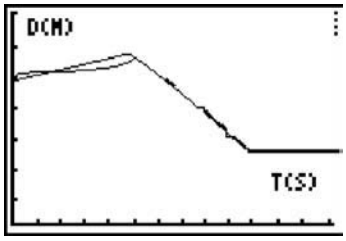
TECHNOLOGY LAB 3-1
Graphing Your Motion

1. The second graph is steeper.

2. Distance vs. Time



Matching Distance vs. Time



The slope of the portion of the graph corresponding to movement is greater for the faster trial.

Results will probably vary between groups as they may walk at different rates.

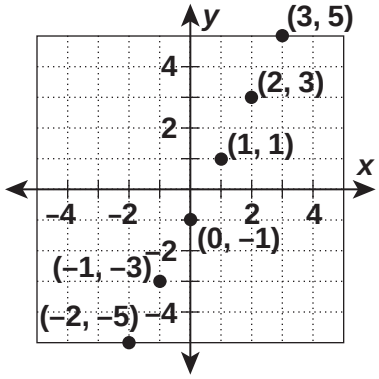
Walking towards the motion detector will produce a negative slope. While walking away from the motion detector will produce a positive slope.

ALGEBRA LAB 3-2
The Vertical-Line Test

1. yes

2. Yes; each *x*-value has exactly one *y*-value.
no

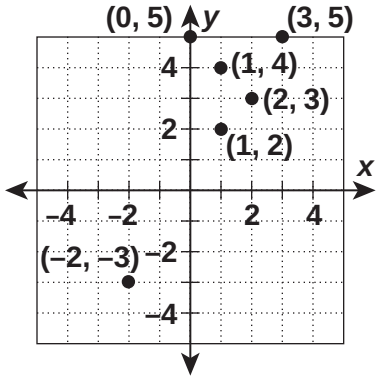
3.



4. No; the *x*-value 1 has two *y*-values: 2 and 4.

5. No; an *x*-value has more than one *y*-value.
yes

6.



7. 1; yes

8. Possible answer: A relation is a function if there are no vertical lines that intersect the graph at more than one point.

9. The vertical-line test works because it shows if there is more than 1 *y*-value for an *x*-value.

Try This

1. not a function; possible answer: (0, −4), (0, 4)
2. function
3. not a function; possible answer: (3, 2), (3, −2)