

# Functions & Relations

Guided Practice Worksheet

# Algebra

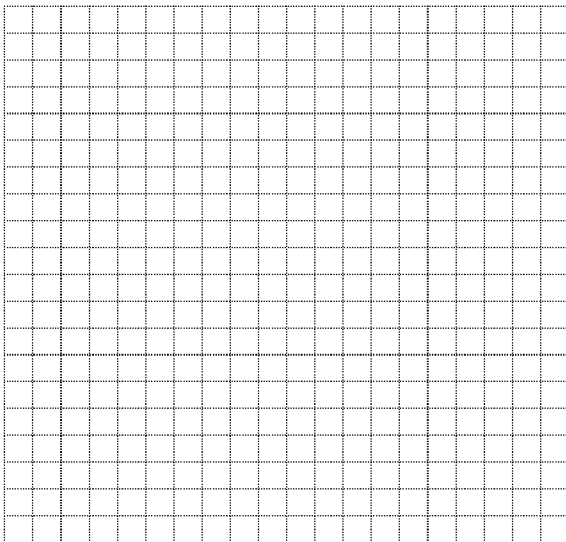
for Students.

## Exploring Functions & Relations

1. The refreshment stand at the amusement park sells lemonade according to the following price structure:

Drink Size (oz)	Price (\$)
12	0.99
16	1.19
24	1.49
48	1.89

- (a) Construct a mapping diagram that illustrates the connection between the drink size and price.
- (b) Make a graph that illustrates the connection between the drink size ( $x$ -axis) and price ( $y$ -axis).



- (c) Determine the domain, range, dependent variable and independent variable.

- (d) Based on the information given, can you determine the price of a 64-ounce cup of lemonade? Explain your answer.

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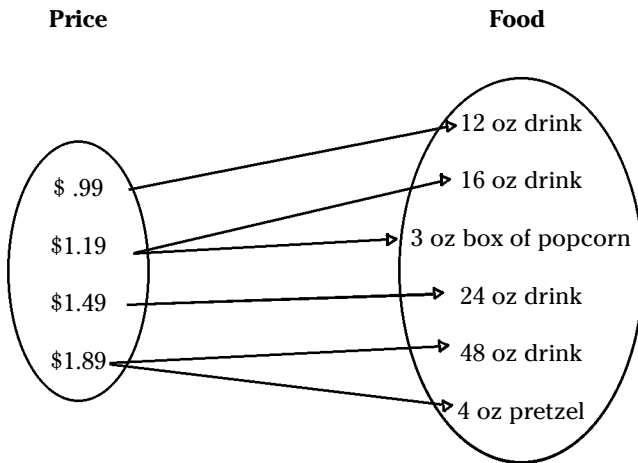
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## Exploring Functions & Relations (cont'd.)

2. Examine the mapping diagram below, which shows the price of various food items at an amusement park refreshment stand. Determine whether or not the mapping diagram represents a function. Explain your answer.



3. Examine the table below, which shows the estimated wait time, in minutes, for riding an amusement park roller coaster at various times throughout the day.

(a) Determine whether or not the relation is a function. Explain your answer.

(b) Is this relation a function if the domain and range are reversed? Explain your answer.

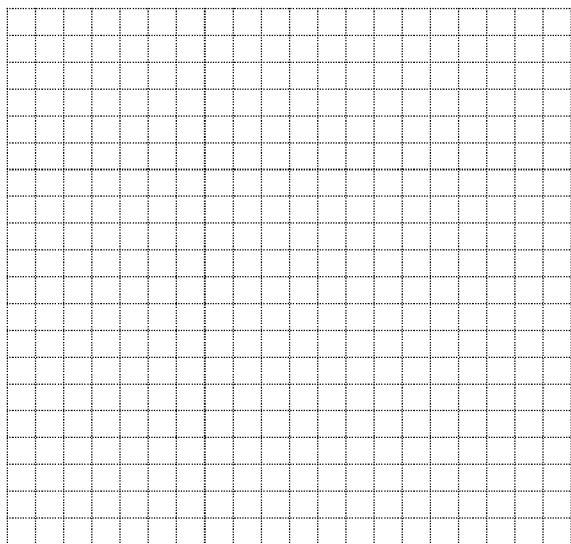
Time of Day	Estimated Wait Time (minutes)
10 am	5
11 am	10
12 pm	15
1 pm	35
2 pm	45
3 pm	45
4 pm	35
5 pm	20
6 pm	15
7 pm	10
8 pm	15
9 pm	20
10 pm	25
11 pm	20

## Applying the Vertical Line Test

The data in the table below shows a rider's height above the ground, in feet, during the first 60 seconds of a 120-second Ferris wheel ride.

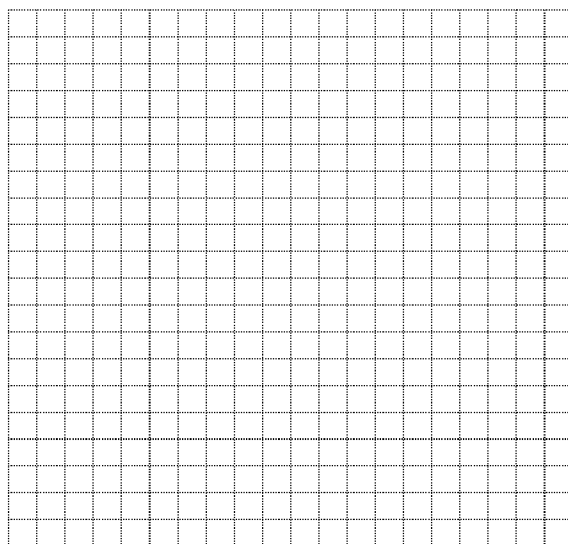
Time (seconds)	Height Above Ground (feet)
0	10
5	50
10	90
15	50
20	10
25	50
30	90
35	50
40	10
45	50
50	90
55	50
60	10

1. Make a graph of the rider's height above ground ( $y$ -axis) versus the time on the ride ( $x$ -axis) during the first 60 seconds of the Ferris wheel ride.



2. Use the vertical line test to determine whether or not the graph from Question #1 represents a function. Explain your answer.

3. Make a graph of the time on the ride ( $y$ -axis) versus the rider's height above ground ( $x$ -axis) during the first 60 seconds of the Ferris wheel ride.



4. Use the vertical line test to determine whether or not the graph from Question #3 represents a function. Explain your answer.

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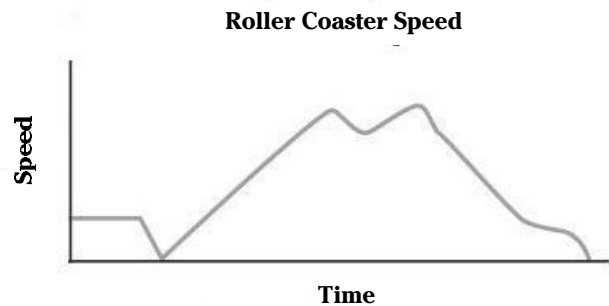
## Is It a Function?

1. Examine each set of ordered pairs. Construct a mapping diagram that illustrates the connection between each domain and range. Determine whether or not each set represents a function. Explain your answer.

- (a)  $(2,3)$   
 $(4,-2)$   
 $(2,-2)$   
 $(6,5)$

- (b)  $(2,3)$   
 $(4,-2)$   
 $(3,-2)$   
 $(6,5)$

2. Examine the graph below, which shows the speed of a roller coaster car during the course of a ride. Determine whether or not the graph represents a function. Explain your answer.



3. Examine the graph below, which shows the number of points earned in an arcade pinball game and the game level. Determine whether or not the graph represents a function. Explain your answer.

