Algebra 1 1.6

Represent relations

Interpret graphs of relations

coordinate system

ordered pair

x-coordinate

y-coordinate

relation

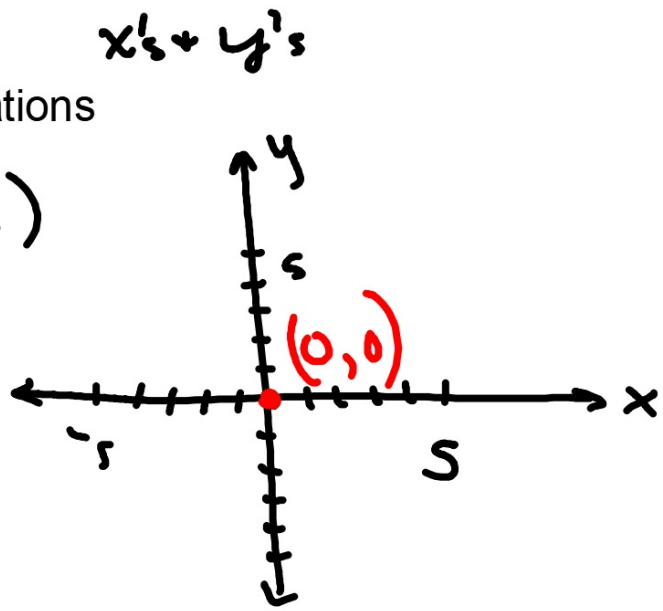
mapping

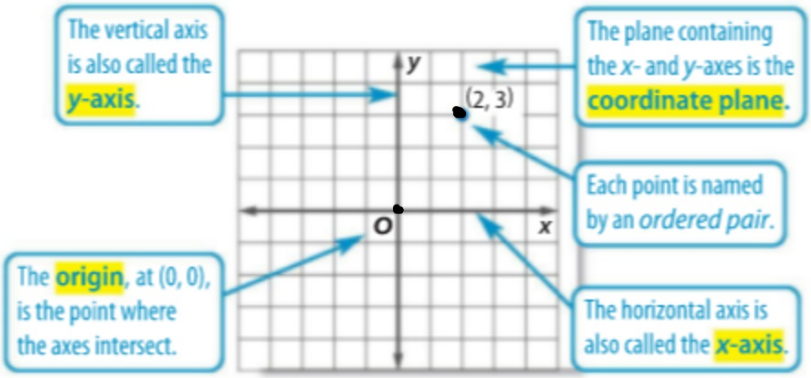
domain

range

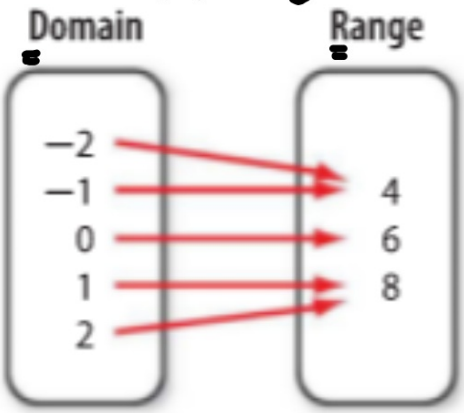
independent variable

dependent variable




The vertical axis is also called the y-axis.
The plane containing the x- and y-axes is the coordinate plane.
y
(2, 3)
Each point is named by an ordered pair.
O
x
The origin, at (0, 0), is the point where the axes intersect.
The horizontal axis is also called the x-axis.

Mapping



all x-coords all y-coord

ord pairs

(-2, 4)

(-1, 4)

(0, 6)

(1, 8)

(2, 8)

table

x	y
-2	4
-1	4
0	6
1	8
2	8

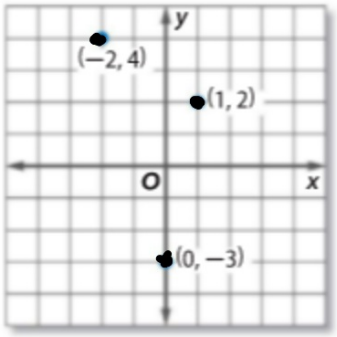
Ordered Pairs

(1, 2)
(−2, 4)
(0, −3)

Table

x	y
1	2
−2	4
0	−3

Graph



Mapping

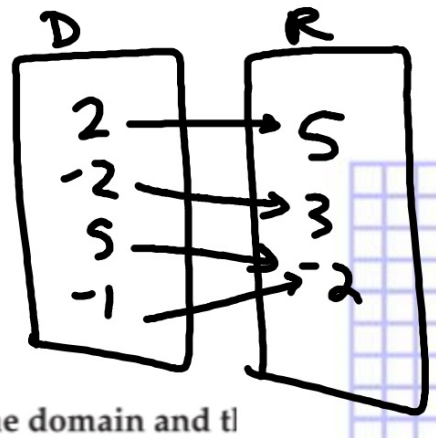
D: 1, -2, 0

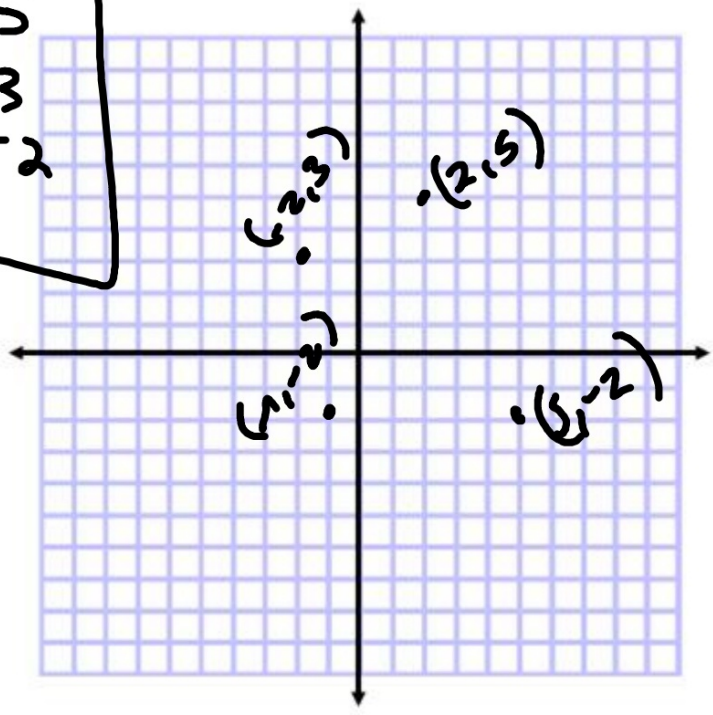
R: 2, 4, -3

Example 1 Representations of a Relation

a. Express $\{(2, 5), (-2, 3), (5, -2), (-1, -2)\}$ as a table, a graph, and a mapping.

x	y
2	5
-2	3
5	-2
-1	-2





b. Determine the domain and t

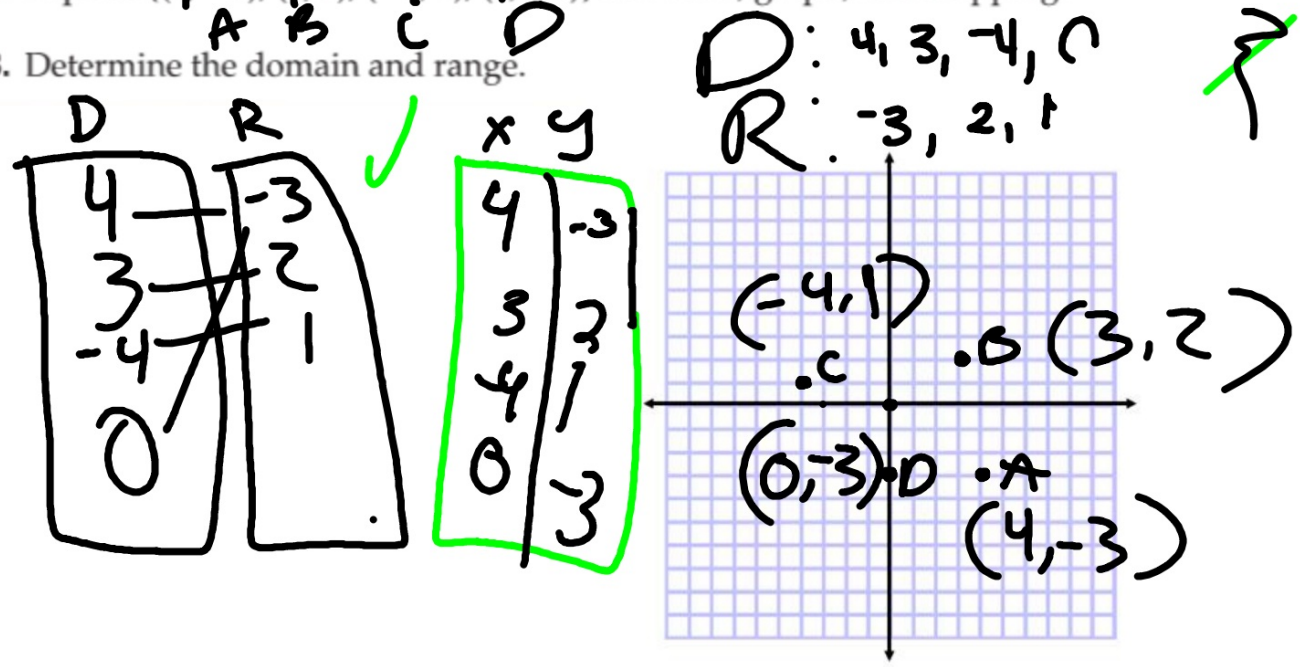
D: 2, -2, 5, -1

R: 5, 3, -2

Guided Practice

1A. Express $\{(4, -3), (3, 2), (-4, 1), (0, -3)\}$ as a table, graph, and mapping.

1B. Determine the domain and range.



Real-World Example 2 Independent and Dependent Variables

x y

Identify the independent and dependent variables for each relation.

a. **DANCE** The dance committee is selling tickets to the Fall Ball. The more tickets that they sell, the greater the amount of money they can spend for decorations.

i : number of tickets

d: amount of $

Which thing causes the other thing?

b. **MOVIES** Generally, the average price of going to the movies has steadily increased over time.

time ↑ year x

price higher y

x: cause y: what happened

Identify the independent and dependent variables for each relation.

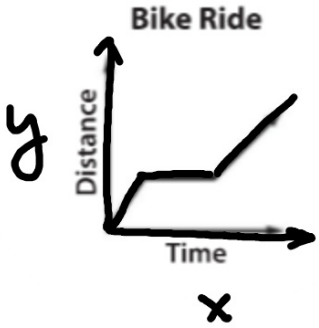
2A. The air pressure inside a tire increases with the temperature.

2B. As the amount of rain decreases, so does the water level of the river.

i d

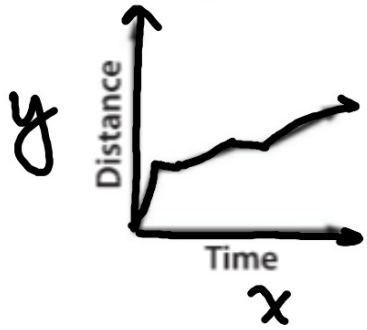
Example 3 Analyze Graphs

The graph represents the distance Francesca has ridden on her bike. Describe what happens in the graph.

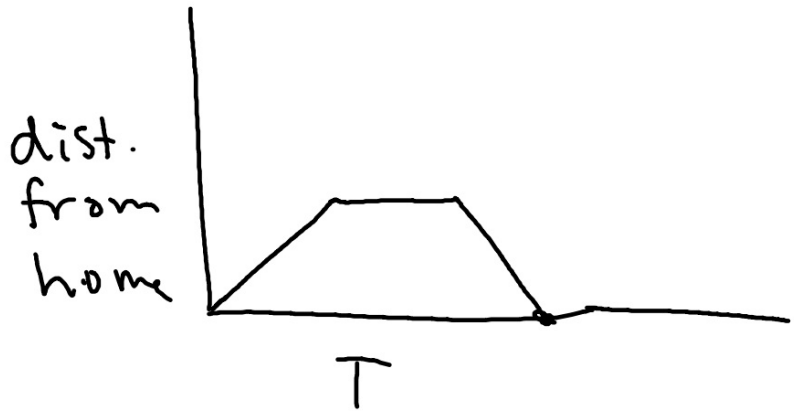


Describe what is happening in each graph.

3A. Driving to School



3B. Change in Income


dist.
from
home
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