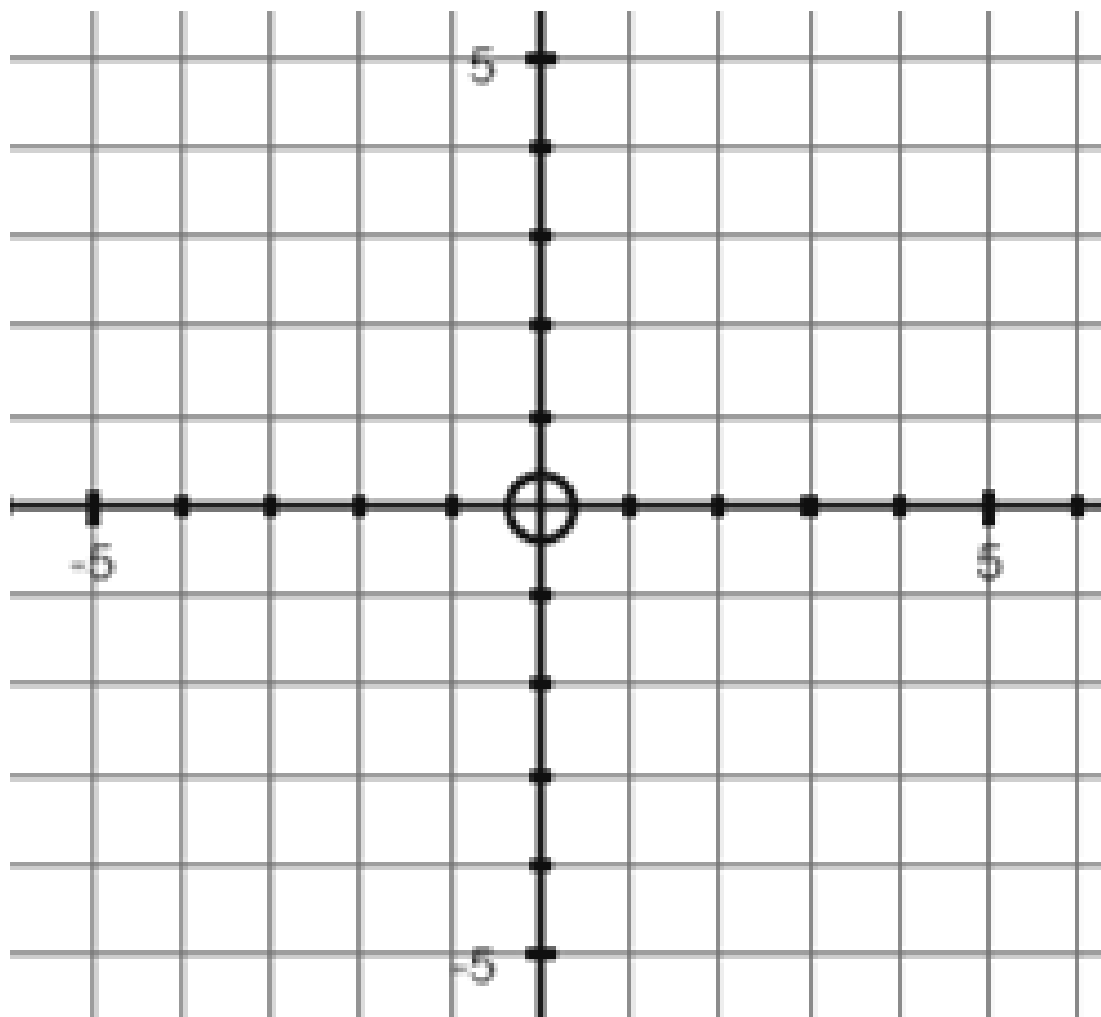# Warm-up

Graph each point on a coordinate plane.

**1.** $(2, -4)$ **2.** $(0, 3)$ **3.** $(-1, -2)$ **4.** $(-3, 0)$

Let's start by saying that a **relation** is simply a set or collection of ordered pairs. Nothing really special about it. An ordered pair, commonly known as a point, has two components which are the x and y coordinates.

What Makes a Relation a Function?

On the other hand, a **function** is actually a "special" kind of relation because it follows an extra rule. Just like a relation, a function is also a set of ordered pairs; however, every x-value must be associated to only one y-value.
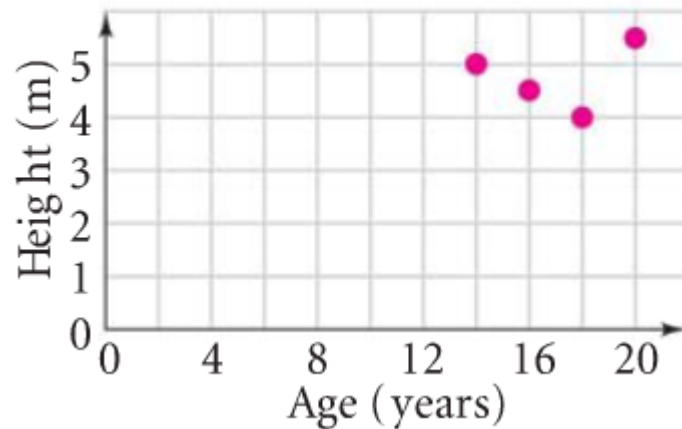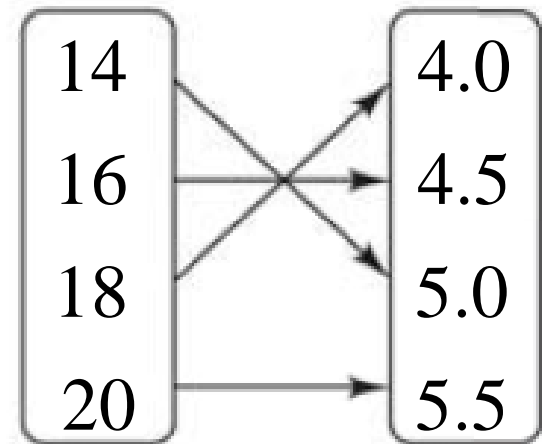
Relations and Functions
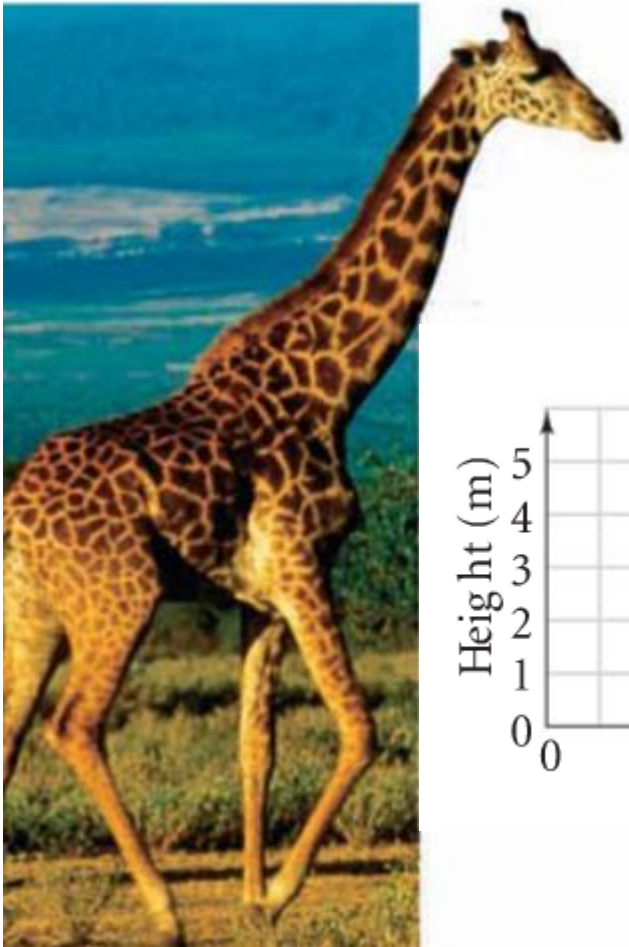
Giraffe Heights

Age (years)	18	16	20	14
Height (meters)	4.0	4.5	5.5	5.0

Giraffe Heights

domain   range

14 → 5.0
16 → 4.5
18 → 4.0
20 → 5.5

Identifying a Function Given a Table

Running Times

Distance (meters)	100	800	400	200
Time (seconds)	10	107	45	20

domain: 100   200   400   800

range: 10   20   45   107

Find the domain and range of each relation. Is each relation a function?

a.

x	y
−2	3
3	−1
5	0
−4	3

Domain: −4   −2   3   5

Range: −1   0   3

Yes, it is a function

b.

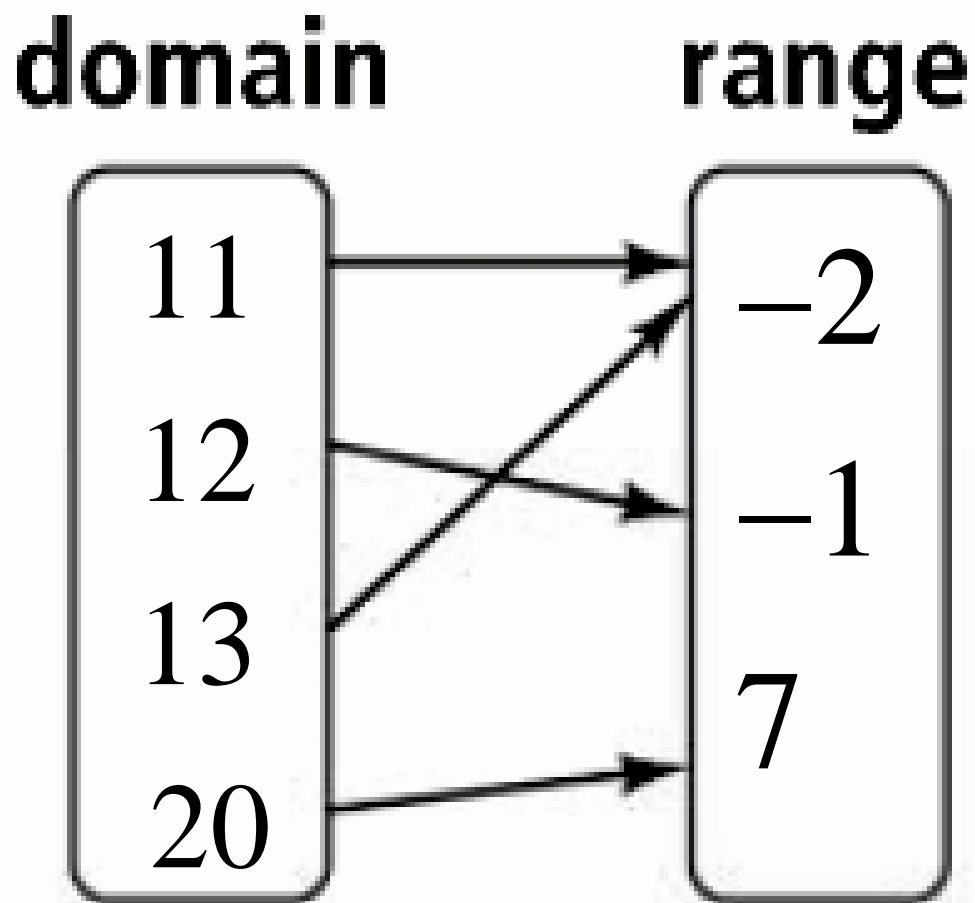| x	y
−3	−5
6	7
−3	4
8	−2

Domain: −3   6   8

Range: −5   −2   4   7

NO, it is NOT a function

Using a Mapping Diagram
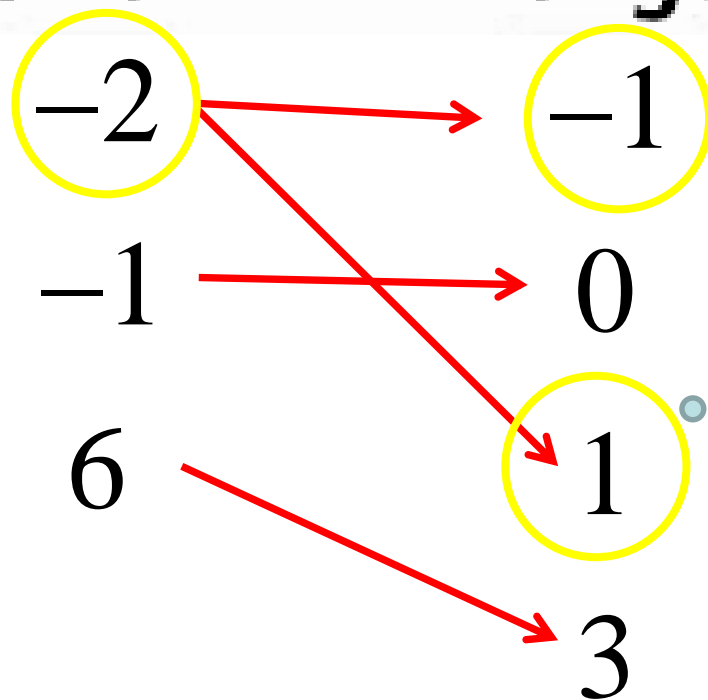
a. $\{(11, -2), (12, -1), (13, -2), (20, 7)\}$

Using a Mapping Diagram

b. $\{(-2, -1), (-1, 0), (6, 3), (-2, 1)\}$

domain   range

$-2 \rightarrow -1$

$-1 \rightarrow 0$

$\rightarrow 1$

$6 \rightarrow 3$

Not a Function