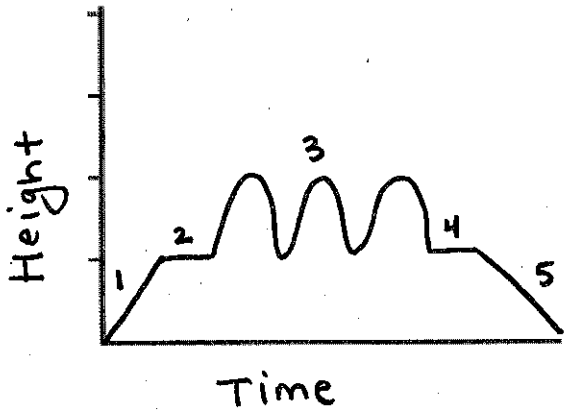
Name Key

Functions Test Review

Sketch a graph of the situation below and label each axis appropriately. Provide a written scenario that explains what your sketch is modeling.

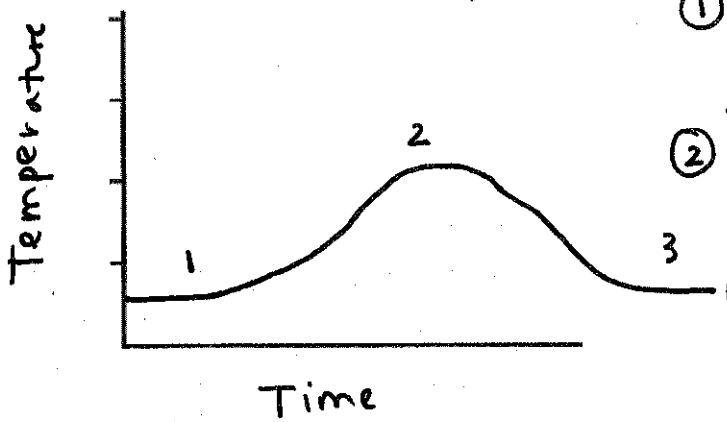
1. Your height above the ground as you mount, jump on, and dismount a trampoline.



EXPLANATION

(1) You get on the tramp from the ground so your height increases.
(2) You wait for a minute before you jump.
(3) Jumping 3 times
(4) Catching your breath
(5) Getting off the tramp.

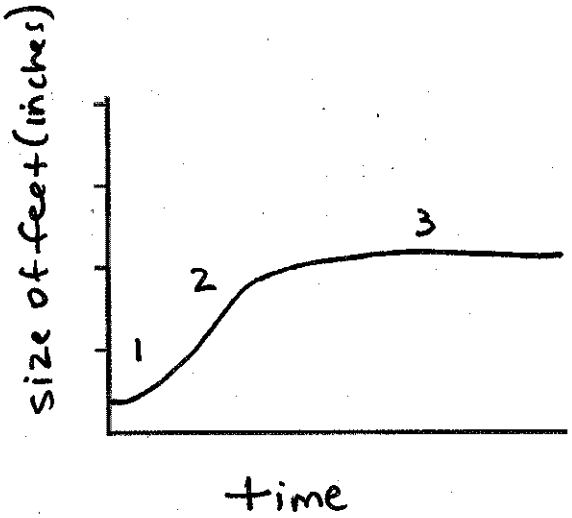
2. The average temperature in Grand Rapids over the course of a year beginning in January and ending in December



EXPLANATION

(1) Jan./Feb. the avg. temp. remains below freezing
(2) Temps peake in the summer. (June → Aug.)
(3) Temps return back to freezing by December.

3. The size of your feet from birth to adulthood.



EXPLANATION

(1) when you are born, your feet are around 2 inches.
(2) From birth to adulthood, feet grow rapidly
(3) Feet remain the same size through adulthood.

4. Use the graph below to answer the following questions.

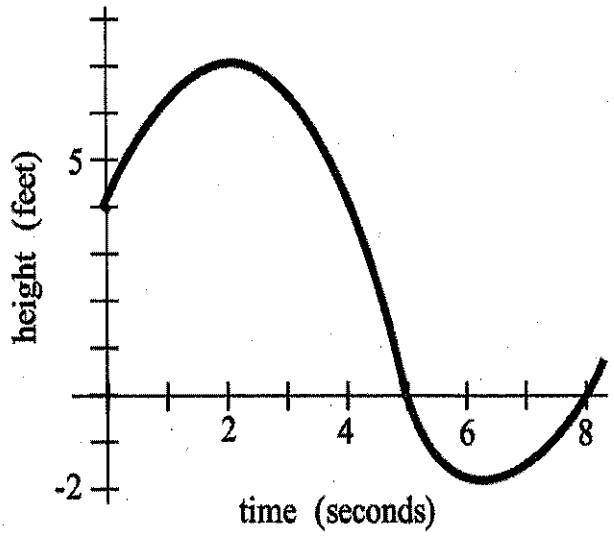


Fig. 22

(a) What was the height of the diving board? WHY?

4 Feet. At time 0, the diver jumped off the board which occured at a height of 4.

(b) When did the diver hit the water? WHY?

5 seconds. At this time the height of the diver is 0.

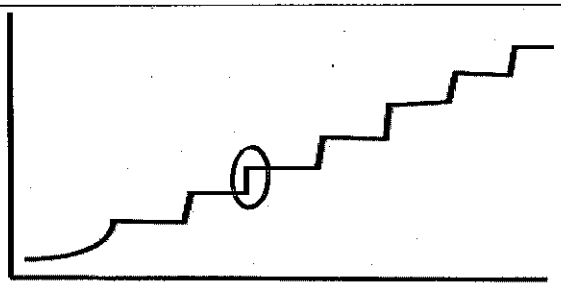
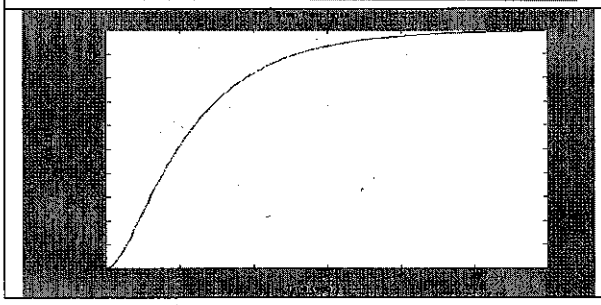
(c) How deep did the diver get? WHY?

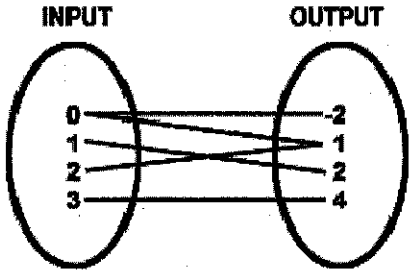
2 feet below the water since the lowest height is -2.

(d) When did the diver return to the surface? WHY?

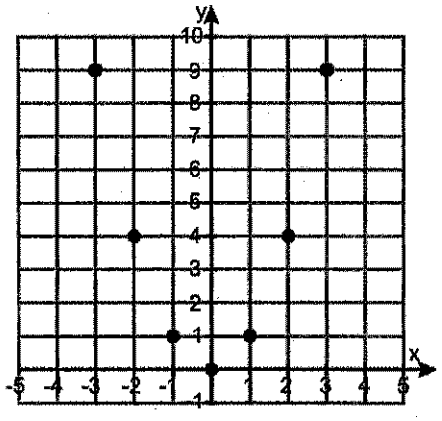
8 seconds, because here the diver's height was back at zero.

5. Are the following scenarios representing function? Make sure you provide an explanation for your reasoning.

SCENARIO	IS IT A FUNCTION?
	No. The circled portion of the graph is showing more than 1 input having the same output.
	Yes. Each input is paired to only one output.

<table><tr><th>x</th><th>y</th></tr><tr><td>9</td><td>-2</td></tr><tr><td>15</td><td>-1</td></tr><tr><td>21</td><td>5</td></tr><tr><td>22</td><td>5</td></tr></table>	Yes. Each value in the domain is paired to only one range value.
	No, the input 0 is paired to two outputs (-2 and 1)
{(6, 3), (7, -2), (-1, 4), (6, 8)}	No, the x-coordinate 6 is paired with 2 different y-coordinates (3 and 8)

6. List the domain and the range of the following relation:



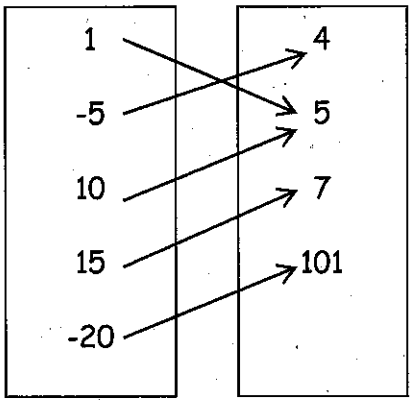
Domain:

$\{-3,-2,-1,0,1,2,3\}$

Range:

$\{0,1,4,9\}$

7. List the domain and range of the following relation:



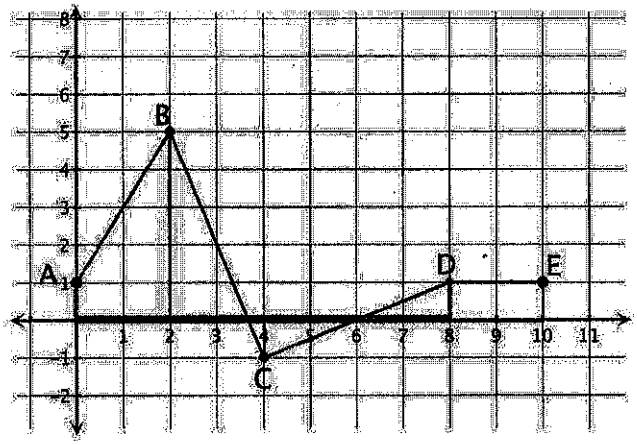
Domain:

$\{-20, -5, 1, 10, 15\}$

Range:

$\{4, 5, 7, 101\}$

8. *Describe* the domain and range of the following relation:



Domain:

all the x-coordinates between 0 and 10.

Range:

all the y-coordinates between 1 and 5.

9. List the domain and the range of the following relation:

{(1, -6), (-4, 2), (-7, 1), (1, -9), (-8, 0), (5, 4)}

Range:

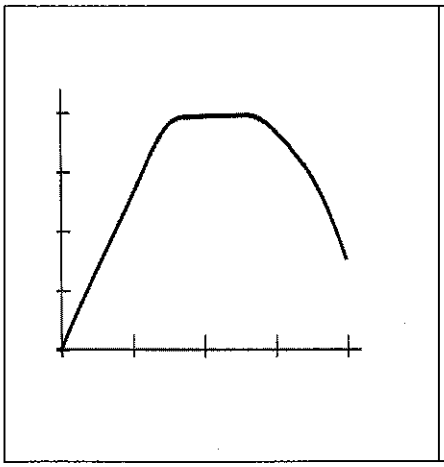
$\{-9, -6, 0, 1, 2, 4\}$

Domain:

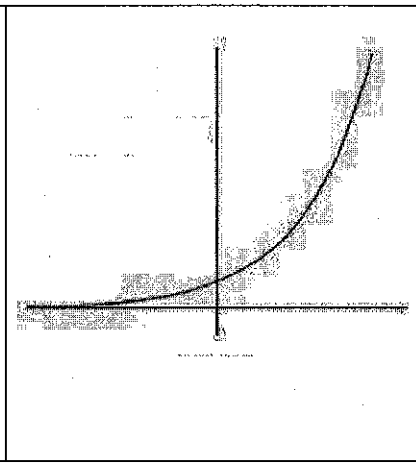
$\{-8, -7, -4, 1, 5\}$

10. Match 3 of the following 6 graphs with their correct scenario below. For the remaining 3 graphs, describe a situation that might model the graph.

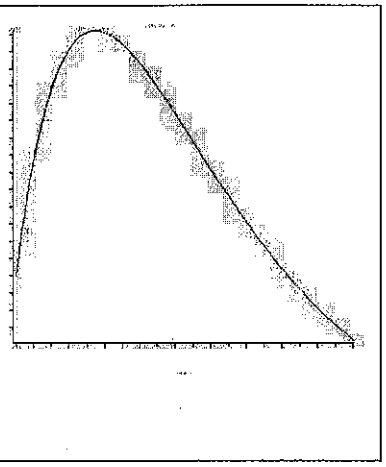
1



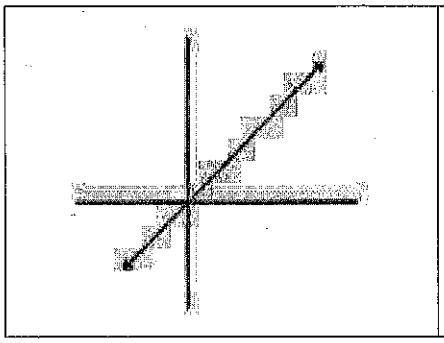
2



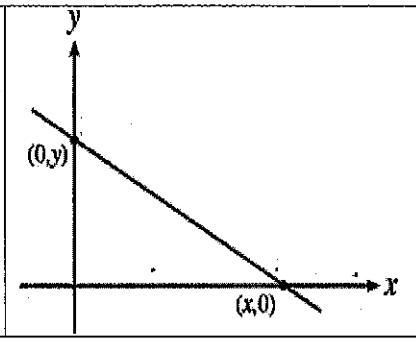
3



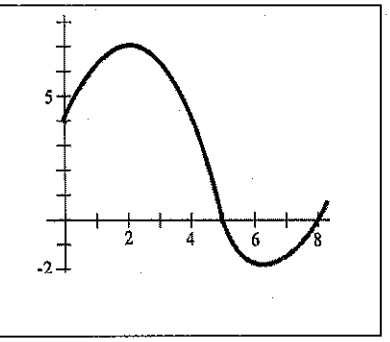
4



5



6



Scenario	Number match	Explanation
Your height above ground on a rollercoaster.	3	at the 1st big hill your height increases fast and gets lower after the coaster goes over the top.
The distance John is from home when he went for a run, bumped into a friend, stopped to chat, then started running back toward home.	1	graph increases as John runs away from home, remains constant when he stopped and continues down as he goes back home
The height of a diver above the water level at time t seconds.	6	height increases, goes below the surface as the diver goes under the water and returns back to the surface

Graph Num.	Scenario Description
2	The population of mice when no predators are around.
4	having a bank account when the same amount of money is deposited each week.
5	Jogging from the store back to home at a constant pace.