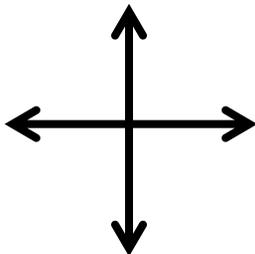


# discrete functions

A discrete function has a graph that consists of

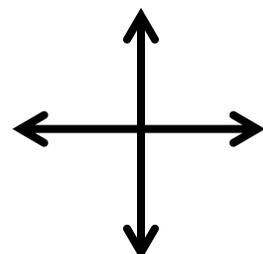
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# continuous functions

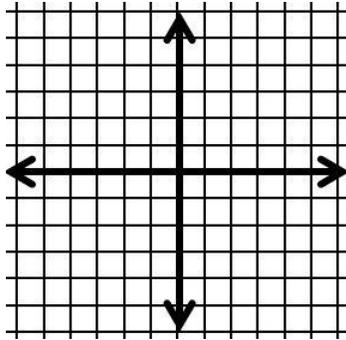
A continuous function has a graph that is

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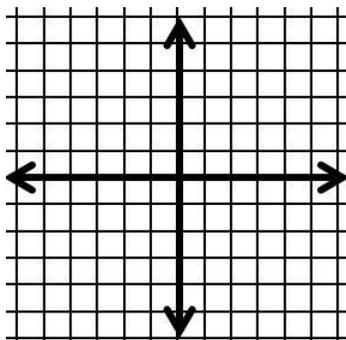


## GRAPHING discrete functions

Graph the function  $y = 2x - 1$  with domain  $x = \{-1, 0, 1, 2, 3\}$ . Then, identify the range.



Graph the function  $y = -x + 4$  with domain  $x = \{-2, -1, 0, 1, 2\}$ . Then, identify the range.



## identifying discrete situations

Explain why the situation is discrete.

Cost of movie tickets

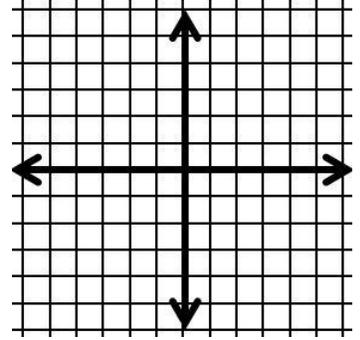
# of Movie Tickets	1	2	3	4	5
Cost (dollars)	8.50	17.00	25.50	34.00	42.50

Points during game of laser tag

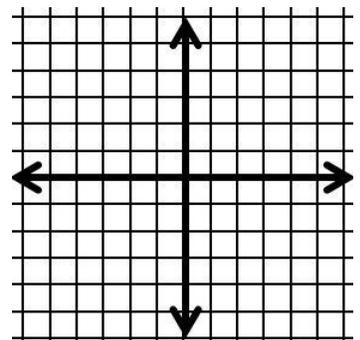
Targets Hit	0	1	2	3	4	5	6
Score	0	4	8	12	16	20	24

## GRAPHING continuous functions

Graph the function  $y = 2x - 1$  with domain  $x \geq 0$ . Then, identify the range.



Graph the function  $y = -x + 4$  with domain  $x \geq 1$ . Then, identify the range.



## identifying continuous situations

Explain why the situation is continuous.

Temperature of fish tank during an experiment

Time (h)	0	1	2	3	4
Temperature ( $^{\circ}$ F)	83	80	79	77	74

Height of rocket after launch

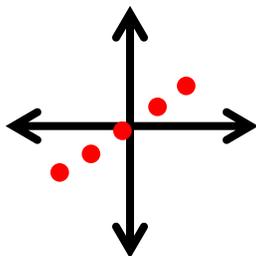
Time (s)	0	1	2	3	4	5	6
Height (m)	0	30	35	37	31	22	0

# discrete functions

A discrete function has a graph that consists of

distinct points

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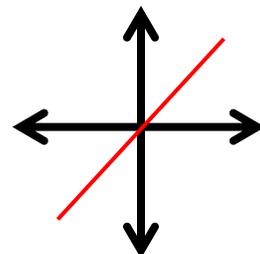


# continuous functions

A continuous function has a graph that is

connected

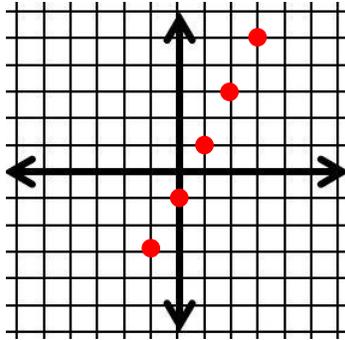
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## GRAPHING discrete functions

Graph the function  $y = 2x - 1$  with domain  $x = \{-1, 0, 1, 2, 3\}$ . Then, identify the range.

x	y
-1	$2(-1) - 1 = -3$
0	$2(0) - 1 = -1$
1	$2(1) - 1 = 1$
2	$2(2) - 1 = 3$
3	$2(3) - 1 = 5$

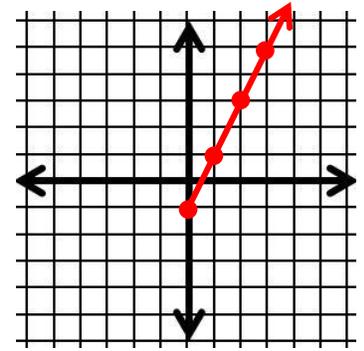


**Range:**  
 $y = \{-3, -1, 1, 3, 5\}$

## GRAPHING continuous functions

Graph the function  $y = 2x - 1$  with domain  $x \geq 0$ . Then, identify the range.

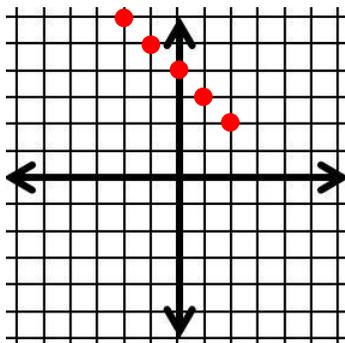
x	y
0	$2(0) - 1 = -1$
1	$2(1) - 1 = 1$
2	$2(2) - 1 = 3$
3	$2(3) - 1 = 5$
4	$2(4) - 1 = 7$



**Range:**  
 $y \geq -1$

Graph the function  $y = -x + 4$  with domain  $x = \{-2, -1, 0, 1, 2\}$ . Then, identify the range.

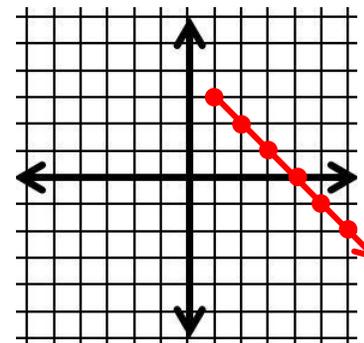
x	y
-2	$-(-2) + 4 = 6$
-1	$-(-1) + 4 = 5$
0	$-(0) + 4 = 4$
1	$-1 + 4 = 3$
2	$-(2) + 4 = 2$



**Range:**  
 $y = \{2, 3, 4, 5, 6\}$

Graph the function  $y = -x + 4$  with domain  $x \geq 1$ . Then, identify the range.

x	y
1	$-1 + 4 = 3$
2	$-2 + 4 = 2$
3	$-3 + 4 = 1$
4	$-4 + 4 = 0$
5	$-5 + 4 = -1$



**Range:**  
 $y \leq 3$

## identifying discrete situations

Explain why the situation is discrete.

Cost of movie tickets

# of Movie Tickets	1	2	3	4	5
Cost (dollars)	8.50	17.00	25.50	34.00	42.50

You cannot purchase a part of a movie ticket. You must purchase tickets in whole number increments.

Points during game of laser tag

Targets Hit	0	1	2	3	4	5	6
Score	0	4	8	12	16	20	24

You either hit the target or you don't. It is impossible to hit  $\frac{1}{2}$  of a target, for example.

## identifying continuous situations

Explain why the situation is continuous.

Temperature of fish tank during an experiment

Time (h)	0	1	2	3	4
Temperature ( $^{\circ}$ F)	83	80	79	77	74

Time is continuous. Although the table only displays the temperature after 1 hour increments, there was a corresponding temperature at any given time between the hours shown (ie: after  $\frac{1}{2}$  hour).

Height of rocket after launch

Time (s)	0	1	2	3	4	5	6
Height (m)	0	30	35	37	31	22	0

Time is continuous. Although the table only displays the height after 1 second increments, there was a corresponding height at any given time (ie: after  $1\frac{1}{2}$  seconds).

Directions

Step 1: Photocopy pages 1 & 2 front to back (flip along the short edge)

Step 2: Fold in half and cut between the two rectangles making two flaps.

The final product should look like this:

