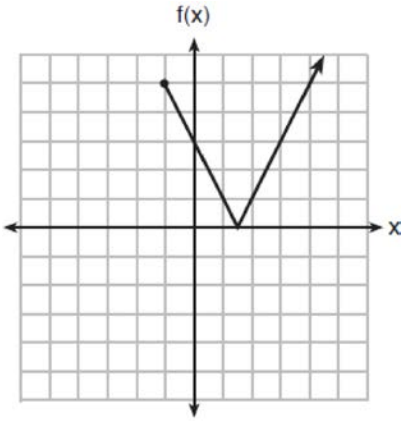
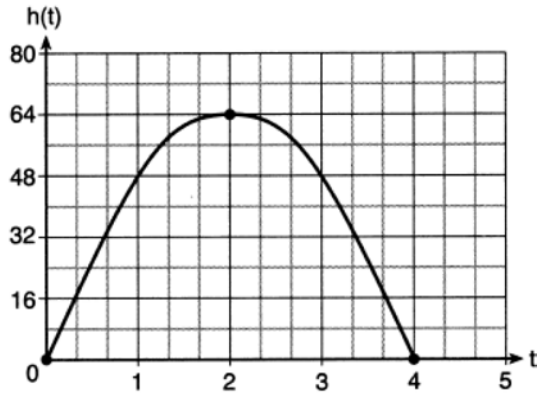
F.IF.B.5: Domain and Range 1

1 The function $f(x)$ is graphed below.



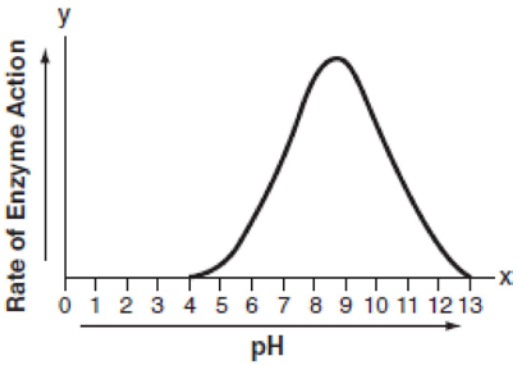
The domain of this function is
1) all positive real numbers
2) all positive integers
3) $x \geq 0$
4) $x \geq -1$

2 The diagram below shows the graph of $h(t)$, which models the height, in feet, of a rocket t seconds after it was shot into the air.



The domain of $h(t)$ is
1) $(0,4)$
2) $[0,4]$
3) $(0,64)$
4) $[0,64]$

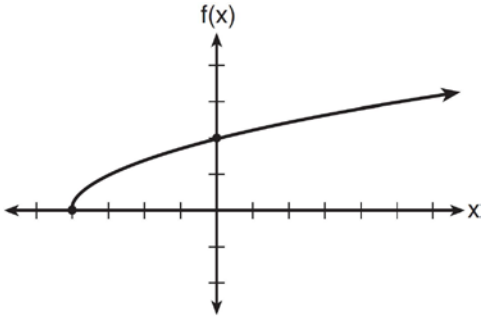
3 The effect of pH on the action of a certain enzyme is shown on the accompanying graph.



What is the domain of this function?

1) $4 \le x \le 13$
2) $4 \le y \le 13$
3) $x \ge 0$
4) $y \ge 0$

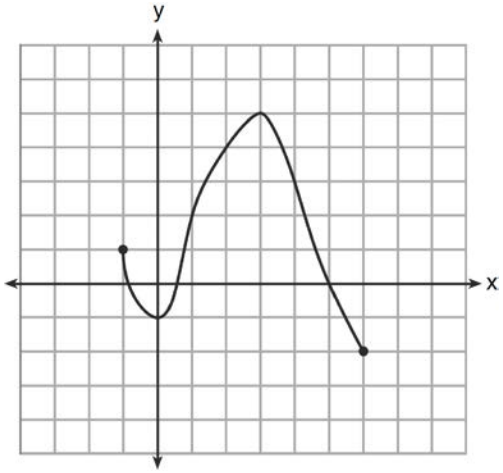
4 The graph of the function $f(x) = \sqrt{x+4}$ is shown below.



The domain of the function is

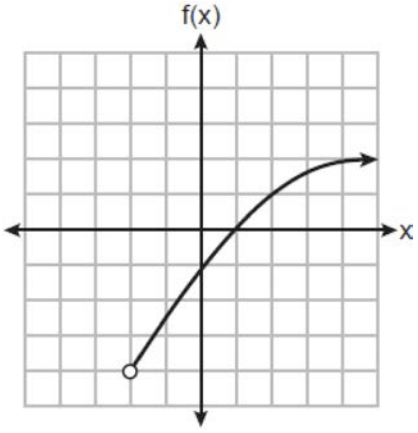
1) $\{x \mid x > 0\}$
2) $\{x \mid x \ge 0\}$
3) $\{x \mid x > -4\}$
4) $\{x \mid x \ge -4\}$

5 What is the domain of the function shown below?



1) $-1 \le x \le 6$
2) $-1 \le y \le 6$
3) $-2 \le x \le 5$
4) $-2 \le y \le 5$

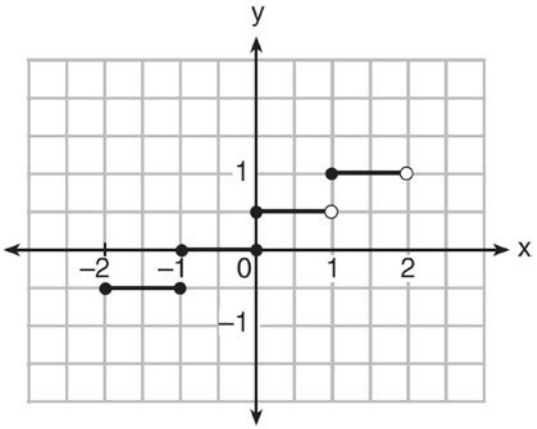
6 A function is graphed on the set of axes below.



The domain of this function is

1) $\{x \mid x > -2\}$
2) $\{x \mid x \ge -2\}$
3) $\{x \mid x > -4\}$
4) $\{x \mid x \ge -4\}$

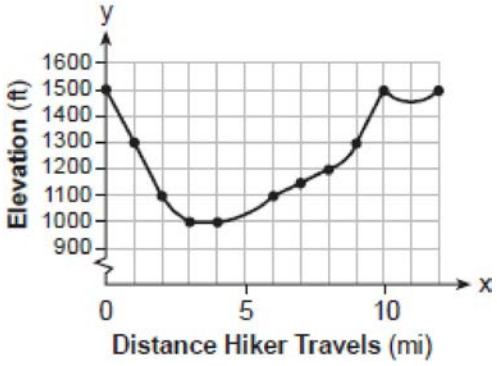
7 The graph of a relation is shown below.



What is the domain of this relation?

1) $\{-2,-1,0,1\}$
2) $\left\{-\frac{1}{2},0,\frac{1}{2},1\right\}$
3) $\{x \mid -2 \le x < 2\}$
4) $\{x \mid -2 \le x \le 2\}$

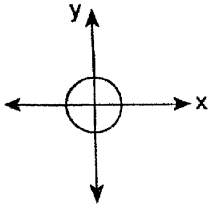
8 The accompanying graph shows the elevation of a certain region in New York State as a hiker travels along a trail.

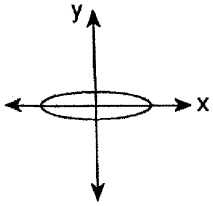


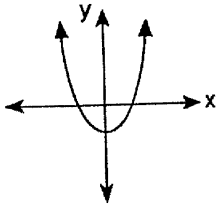
What is the domain of this function?

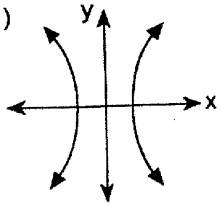
1) $1{,}000 \le x \le 1{,}500$
2) $1{,}000 \le y \le 1{,}500$
3) $0 \le x \le 12$
4) $0 \le y \le 12$

9 Which graph illustrates a quadratic relation whose domain is all real numbers?

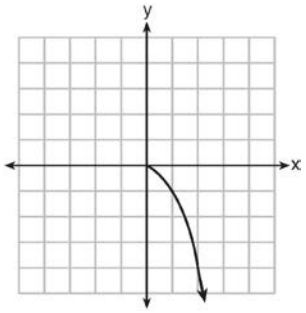
1) 

2) 

3) 

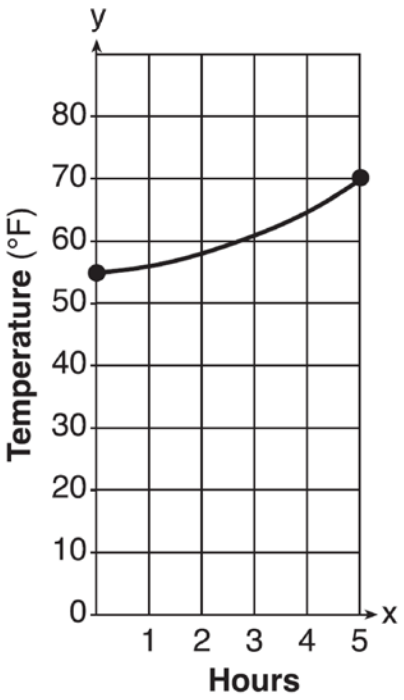
4) 

10 What is the range of the function shown below?



1) $x \le 0$
2) $x \ge 0$
3) $y \le 0$
4) $y \ge 0$

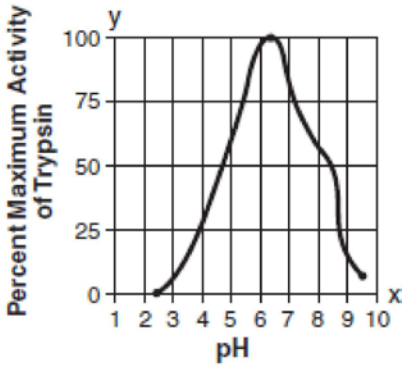
11 The air temperature in Dallas, Texas, over a 5-hour period is shown in the accompanying graph.



What is the range of this set of data?

1) $0 \le x \le 5$
2) $56 \le x \le 70$
3) $0 \le y \le 80$
4) $56 \le y \le 70$

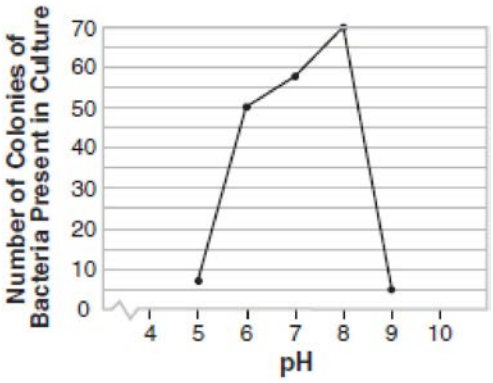
12 Data collected during an experiment are shown in the accompanying graph.



What is the range of this set of data?

1) $2.5 \le y \le 9.5$
2) $2.5 \le x \le 9.5$
3) $0 \le y \le 100$
4) $1 \le x \le 10$

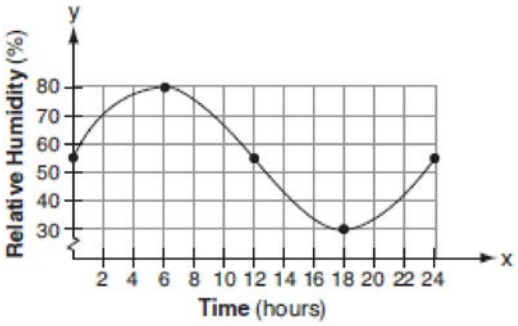
13 The accompanying graph illustrates the presence of a certain strain of bacteria at various pH levels.



What is the range of this set of data?

1) $5 \le x \le 9$
2) $5 \le x \le 70$
3) $0 \le y \le 70$
4) $5 \le y \le 70$

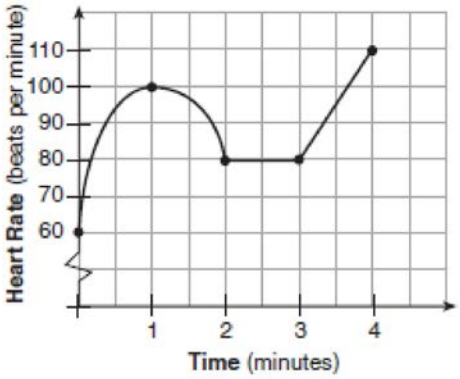
14 A meteorologist drew the accompanying graph to show the changes in relative humidity during a 24-hour period in New York City.



What is the range of this set of data?

1) $0 \le y \le 24$
2) $0 \le x \le 24$
3) $30 \le y \le 80$
4) $30 \le x \le 80$

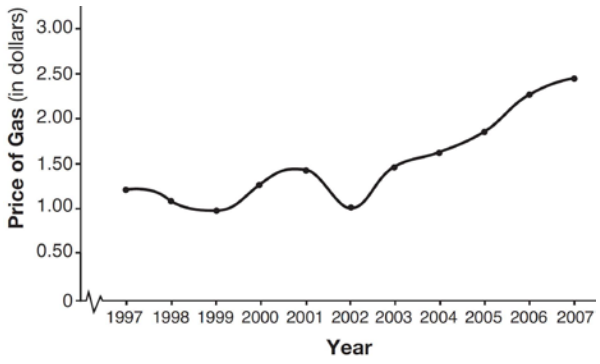
15 The accompanying graph shows the heart rate, in beats per minute, of a jogger during a 4-minute interval.



What is the range of the jogger's heart rate during this interval?

1) 0 – 4
2) 1 – 4
3) 0 – 110
4) 60 – 110

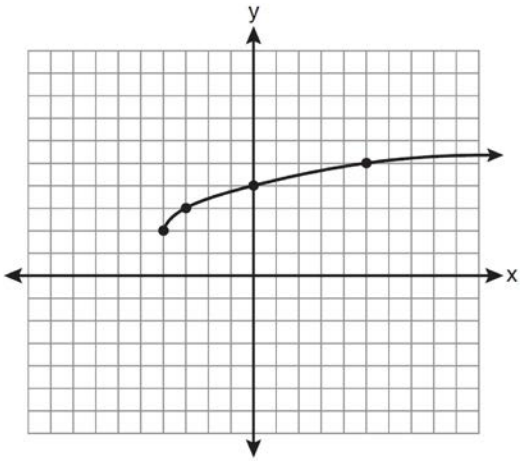
16 The graph below shows the average price of gasoline, in dollars, for the years 1997 to 2007.



What is the approximate range of this graph?

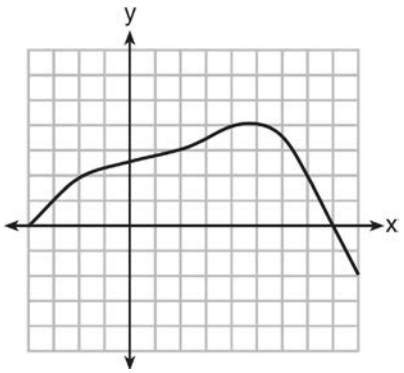
1) $1997 \le x \le 2007$
2) $1999 \le x \le 2007$
3) $0.97 \le y \le 2.38$
4) $1.27 \le y \le 2.38$

17 What are the domain and the range of the function shown in the graph below?



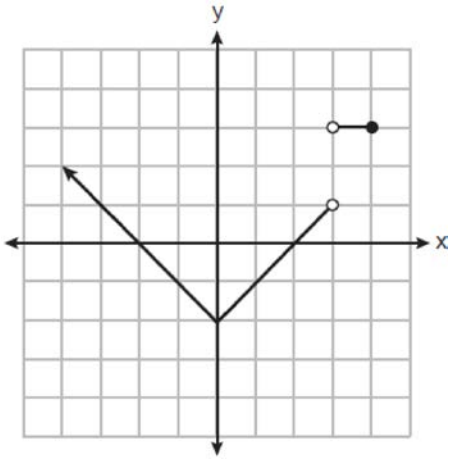
1) $\{x \mid x > -4\}$; $\{y \mid y > 2\}$
2) $\{x \mid x \ge -4\}$; $\{y \mid y \ge 2\}$
3) $\{x \mid x > 2\}$; $\{y \mid y > -4\}$
4) $\{x \mid x \ge 2\}$; $\{y \mid y \ge -4\}$

18 Which value is in the domain of the function graphed below, but is *not* in its range?



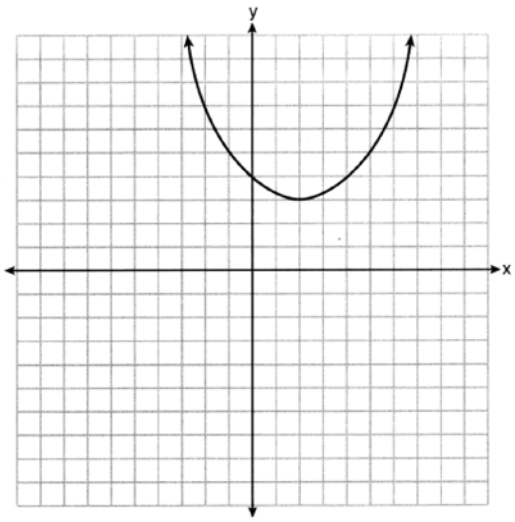
1) 0
2) 2
3) 3
4) 7

19 Bryan said that the piecewise function graphed below has a domain of all real numbers.



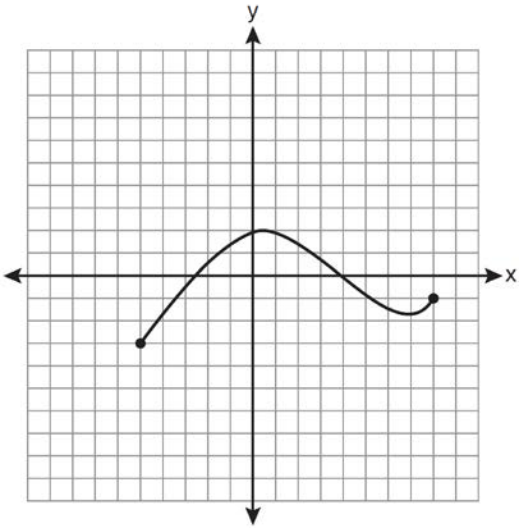
State *two* reasons why Bryan is *incorrect*.

20 A function is graphed on the set of axes below.



State the domain of this function. State the range of this function.

21 The graph below represents the function $y = f(x)$.



State the domain and range of this function.

F.IF.B.5: Domain and Range 1
Answer Section

1 ANS: 4 REF: 011917ai
2 ANS: 2 REF: 082222ai
3 ANS: 1 REF: 010602b
4 ANS: 4 REF: 061509ai
5 ANS: 1 REF: 061202a2
6 ANS: 1 REF: 012517ai
7 ANS: 3 REF: 061606a2
8 ANS: 3 REF: 060804b
9 ANS: 3 REF: 019518siii
10 ANS: 3 REF: 061308a2
11 ANS: 4 REF: 061013b
12 ANS: 3 REF: 010712b
13 ANS: 4 REF: 010918b
14 ANS: 3 REF: 080708b
15 ANS: 4 REF: 060501b
16 ANS: 3 REF: 061418a2
17 ANS: 2 REF: 081003a2
18 ANS: 4 REF: 061518a2
19 ANS:
The function is not defined at $x = 3$ or $x > 4$.

REF: 082327ai
20 ANS:
Domain is reals. Range is $y \geq 3$.

REF: 062229ai
21 ANS:
D: $-5 \leq x \leq 8$. R: $-3 \leq y \leq 2$

REF: 011132a2