

KEY

### Discrete ORDERED PAIRS

$\{(-1, 2), (0, 5), (2, 7)\}$

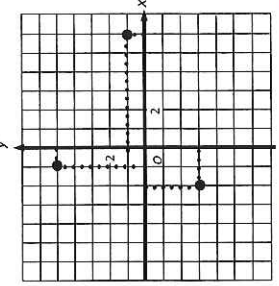
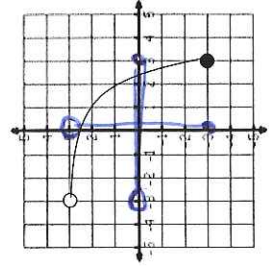
x Domain:

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

y Range:

$\{2, 5, 7\}$

### Continuous vs Discrete



D:  $-3 < x \leq 3$

R:  $\{-2, -1, 6\}$

D:  $-3 \leq y < 3$

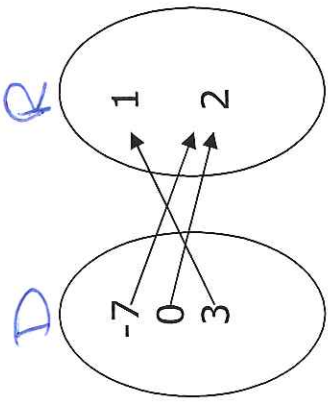
R:  $\{-3, 1, 5\}$

$L \rightarrow G$

The set of all x-values in a relation

The set of all y-values in a relation

### Discrete MAPPINGS



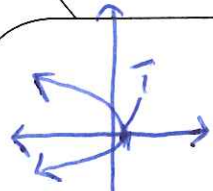
Domain:  $\{-7, 0, 3\}$

Range:  $\{1, 2\}$

### Domain And Range

### continuous EQUATIONS

$$y = x^2 - 1$$



Domain: All real numbers

Range: All real numbers  $\geq -1$

### Discrete TABLES

X	Y
-3	-1
-2	-4
0	2
3	6

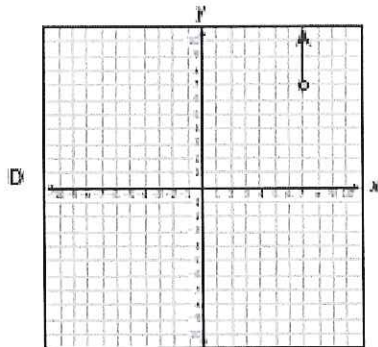
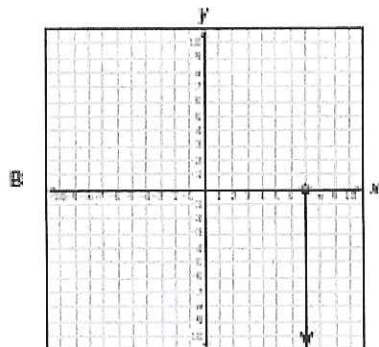
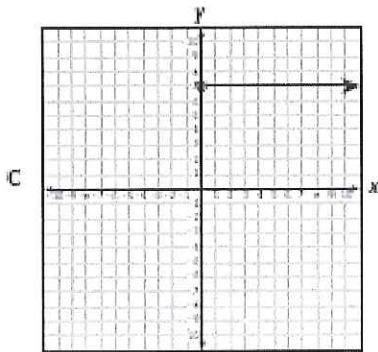
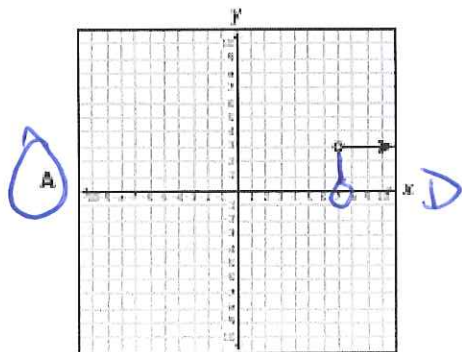
Domain:  $\{-3, 0, 3\}$

Range:  $\{-4, -1, 2, 6\}$

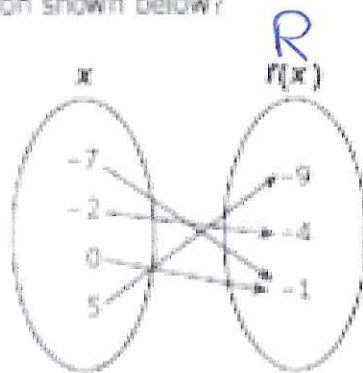
# STAAR Tutorials

## Domain and Range

1. Which graph shows a function with a domain of all real numbers greater than 7?  $> 7$



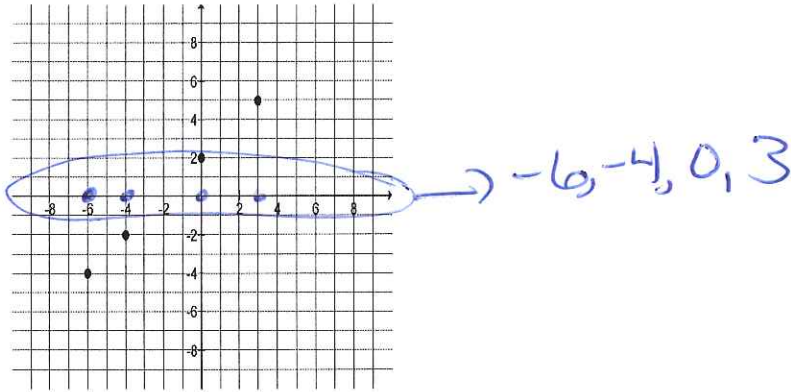
2. What is the range of the function shown below?



- A.  $\{-7, -2, 0, 5\}$   
 B.  $\{-9, -4, -1\}$   
 C.  $\{-9, -7, -4, -2, -1, 0, 5\}$   
 D.  $\{-1\}$

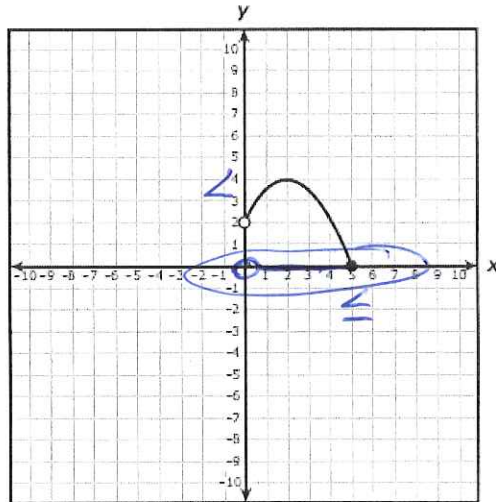
Domain

3. What is the ~~Range~~ of the function graphed below?



- A.  $\{-6, -4, 0, 3\}$
- B.  $\{-6, -4, -2, 0, 2, 3\}$
- C.  $\{-4, -2, 0, 3\}$
- D.  $\{-4, 3\}$

4. What is the ~~domain~~ of the function graphed below?



- A.  $0 < x \leq 5$
- B.  $2 < x \leq 5$
- C.  $0 < x \leq 4$
- D.  $0 < x < 2$

5. Which of the following sets represents the <sup>Range</sup> domain of the function  $y = -2x - 3$  for the given <sup>Domain</sup> range.

**R:**  $\{-7, -3, -1, 1, 3\}$

- a. **D:**  $\{-7, -3, -1, 1, 3\}$
- b. **D:**  $\{-9, -5, -1, 3, 11\}$
- c. **D:**  $\{-12, -8, -6, -3, 0\}$
- d. **D:**  $\{-3, -2, 2, 3, 5\}$

$y =$   
2<sup>nd</sup> table

F  $y = -2(-7) - 3$   $y = -2(3) - 3$   
 $y = 11$   $y = -9$

6. Winnie is driving at a constant rate. The distance from her home in Dallas to her parents' house in Houston is about 232 miles. She creates a graph of distance in relation to time for the trip using the equation  $d = 58t$ . Identify the domain of the function for this situation.

$x = t$   $t = \frac{232}{58}$   
 $t = 4$   $t \neq \text{negative}$

- A. All real numbers
- B. All real numbers from 0 to 232
- C. All real numbers from 0 to 4
- D. All real numbers less than 4

$y =$   
graph or 2<sup>nd</sup> table  
 \* no y-values > 232

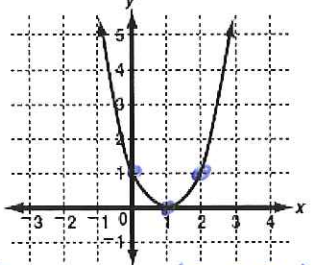
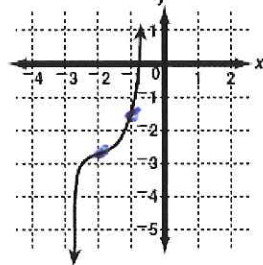
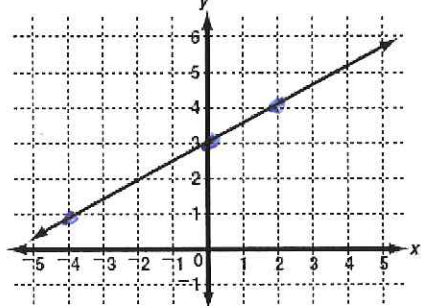
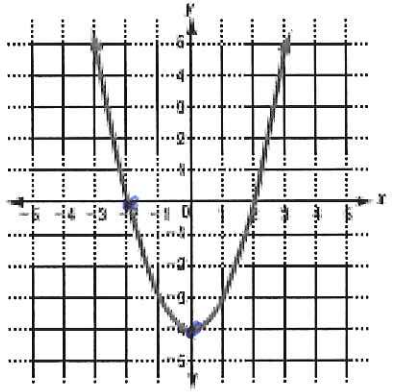
7. Merle owns a cupcake shop. The amount of batches,  $f(c)$ , needed to make  $c$  cupcakes in a day can be found using the function  $f(c) = \frac{c}{12}$ . If she makes at most 1800 cupcakes each day, what is the range of the function for this situation.

- A. The set of all integers from 0 to 1800.
- B. The set of all integers greater than or equal to 1800.
- C. The set of all integers from 0 to 150.
- D. The set of all integers greater than or equal to 150.

$\frac{1800}{12} = 150$   
 $b \leq \frac{1800}{12}$

$c \rightarrow$  independent  $\rightarrow$  domain  
 batches  $\rightarrow$  dependent  $\rightarrow$  range

**Directions:** Evaluate the following functions by looking at the graph.

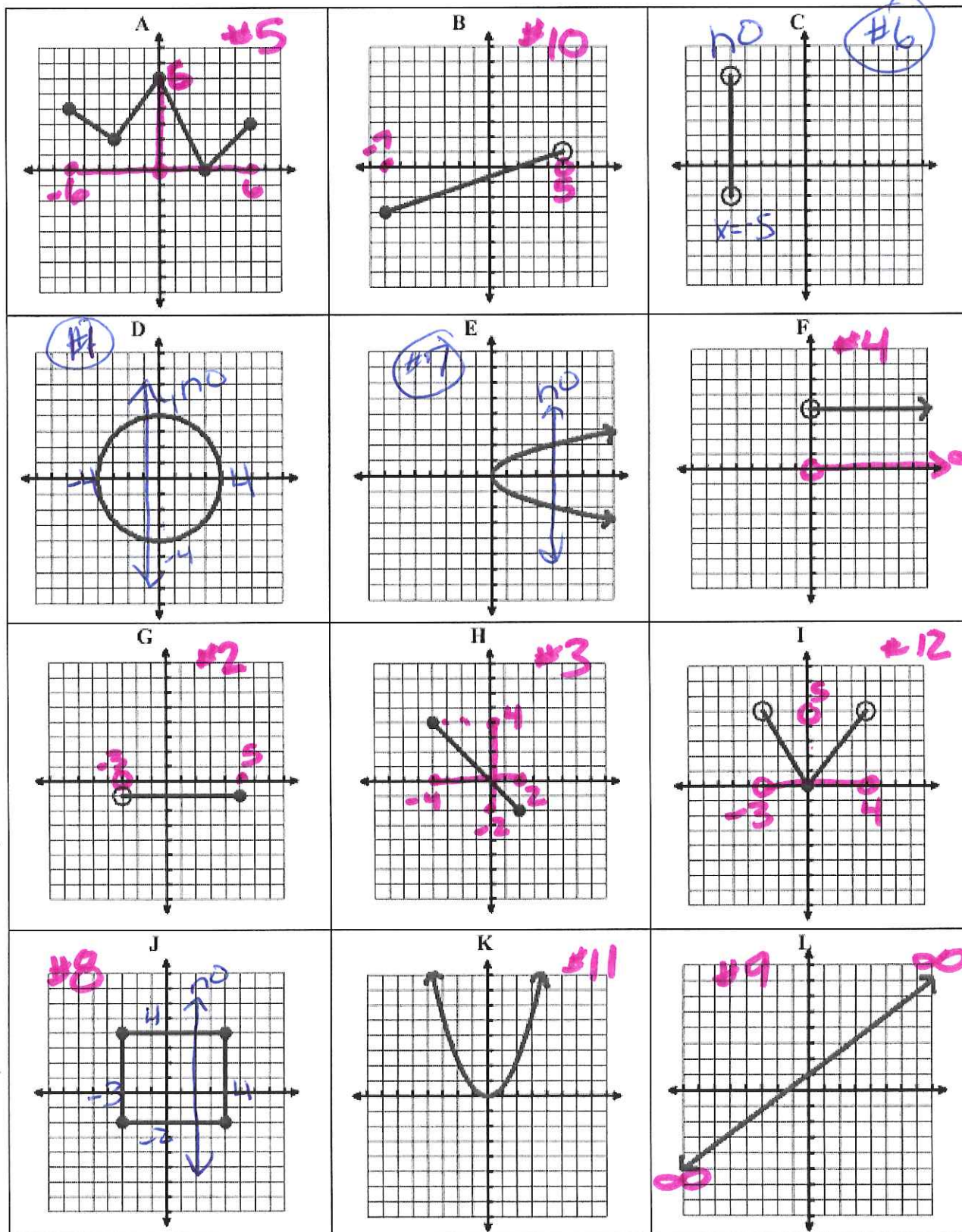
<p>1.</p>  <p>what is y, when x = ...</p> <p><math>f(0) = \underline{1}</math></p> <p><math>f(1) = \underline{0}</math></p> <p><math>f(2) = \underline{1}</math></p>	<p>2.</p>  <p><math>f(-1) = \underline{-1.5}</math></p> <p><math>f(-2) = \underline{-2.75}</math></p> <p><math>f(-3) = \underline{?}</math></p>
<p>3.</p>  <p><math>f(-4) = \underline{1}</math></p> <p><math>f(0) = \underline{3}</math></p> <p><math>f(2) = \underline{4}</math></p>	<p>4.</p> <p><math>f(x) = x^2 - 4</math></p>  <p><math>f(0) = \underline{-4}</math></p> <p><math>f(-2) = \underline{0}</math></p>

# Domain and Range Matching Activity

Match each domain and range given in this table with a graph labeled from **A to L** on the following page. Only use Graphs A to L for this page. Write the letter of your answer in the blank provided for each problem.

<p><u>D</u> 1.</p> <p>Domain: <math>\{-4 \leq x \leq 4\}</math></p> <p>Range: <math>\{-4 \leq y \leq 4\}</math></p> <p>Function: NO</p>	<p><u>G</u> 2.</p> <p>Domain: <math>\{-3 &lt; x \leq 5\}</math></p> <p>Range: <math>\{y = -1\}</math></p> <p>Function: YES</p>	<p><u>H</u> 3.</p> <p>Domain: <math>\{-4 \leq x \leq 2\}</math></p> <p>Range: <math>\{-2 \leq y \leq 4\}</math></p> <p>Function: YES</p>
<p><u>F</u> 4.</p> <p>Domain: <math>\{x &gt; 0\}</math></p> <p>Range: <math>\{y = 4\}</math></p> <p>Function: YES</p>	<p><u>A</u> 5.</p> <p>Domain: <math>\{-6 \leq x \leq 6\}</math></p> <p>Range: <math>\{0 \leq y \leq 6\}</math></p> <p>Function: YES</p>	<p><u>C</u> 6.</p> <p>Domain: <math>\{x = -5\}</math></p> <p>Range: <math>\{-2 &lt; y &lt; 6\}</math></p> <p>Function: NO</p>
<p><u>E</u> 7.</p> <p>Domain: <math>\{x \geq 0\}</math></p> <p>Range: <math>\{\text{all real numbers}\}</math></p> <p>Function: NO</p>	<p><u>J</u> 8.</p> <p>Domain: <math>\{-3 \leq x \leq 4\}</math></p> <p>Range: <math>\{-2 \leq y \leq 4\}</math></p> <p>Function: NO</p>	<p><u>L</u> 9.</p> <p>Domain: <math>\{\text{all real numbers}\}</math></p> <p>Range: <math>\{\text{all real numbers}\}</math></p> <p>Function: YES</p>
<p><u>B</u> 10.</p> <p>Domain: <math>\{-7 \leq x &lt; 5\}</math></p> <p>Range: <math>\{-3 \leq y &lt; 1\}</math></p> <p>Function: YES</p>	<p><u>K</u> 11.</p> <p>Domain: <math>\{\text{all real numbers}\}</math></p> <p>Range: <math>\{y \geq 0\}</math></p> <p>Function: YES</p>	<p><u>I</u> 12.</p> <p>Domain: <math>\{-3 &lt; x &lt; 4\}</math></p> <p>Range: <math>\{0 \leq y \leq 5\}</math></p> <p>Function: YES</p>

USE THESE GRAPHS TO ANSWER QUESTIONS 1 – 12.



Match each domain and range given in this table with a graph labeled from **M to X** on the following page. Only use Graphs M to X for this page. Write the letter of your answer in the blank provided for each problem.

<p><u>V</u> 13.</p> <p>Domain: <math>\{-6 \leq x \leq 3\}</math></p> <p>Range: <math>\{-6 \leq y \leq -1\}</math></p> <p>Function: YES</p>	<p><u>Q</u> 14.</p> <p>Domain: <math>\{0 \leq x &lt; 5\}</math></p> <p>Range: <math>\{0 \leq y &lt; 7\}</math></p> <p>Function: YES</p>	<p><u>N</u> 15.</p> <p>Domain: <math>\{-5 \leq x &lt; 0\}</math></p> <p>Range: <math>\{-5 &lt; y \leq -1\}</math></p> <p>Function: YES</p>
<p><del>X</del> 16.</p> <p>Domain: <math>\{-6 \leq x \leq 3\}</math></p> <p>Range: <math>\{-5 \leq y \leq -1\}</math></p> <p>Function: YES</p>	<p><u>U</u> 17.</p> <p>Domain: <math>\{0 \leq x \leq 6\}</math></p> <p>Range: <math>\{0 \leq y \leq 7\}</math></p> <p>Function: YES</p>	<p><u>O</u> 18.</p> <p>Domain: <math>\{-4 \leq x \leq 7\}</math></p> <p>Range: <math>\{-7 \leq y \leq -2\}</math></p> <p>Function: NO</p>
<p><u>P</u> 19.</p> <p>Domain: <math>\{x \leq 0\}</math></p> <p>Range: <math>\{y \geq 0\}</math></p> <p>Function: YES</p>	<p><u>M</u> 20.</p> <p>Domain: <math>\{2 \leq x \leq 7\}</math></p> <p>Range: <math>\{1 \leq x \leq 6\}</math></p> <p>Function: NO</p>	<p><u>R</u> 21.</p> <p>Domain: <math>\{0 \leq x \leq 4\}</math></p> <p>Range: <math>\{0 \leq y \leq 6\}</math></p> <p>Function: YES</p>
<p><u>W</u> 22.</p> <p>Domain: <math>\{-4 &lt; x &lt; 5\}</math></p> <p>Range: <math>\{-2 \leq y &lt; 5\}</math></p> <p>Function: YES</p>	<p><u>S</u> 23.</p> <p>Domain: <math>\{x \leq 5\}</math></p> <p>Range: <math>\{y = 0\}</math></p> <p>Function: YES</p>	<p><u>T</u> 24.</p> <p>Domain: <math>\{-7 &lt; x &lt; 0\}</math></p> <p>Range: <math>\{-3 &lt; y &lt; 4\}</math></p> <p>Function: YES</p>



USE THESE GRAPHS TO ANSWER QUESTIONS 13 – 24.

