

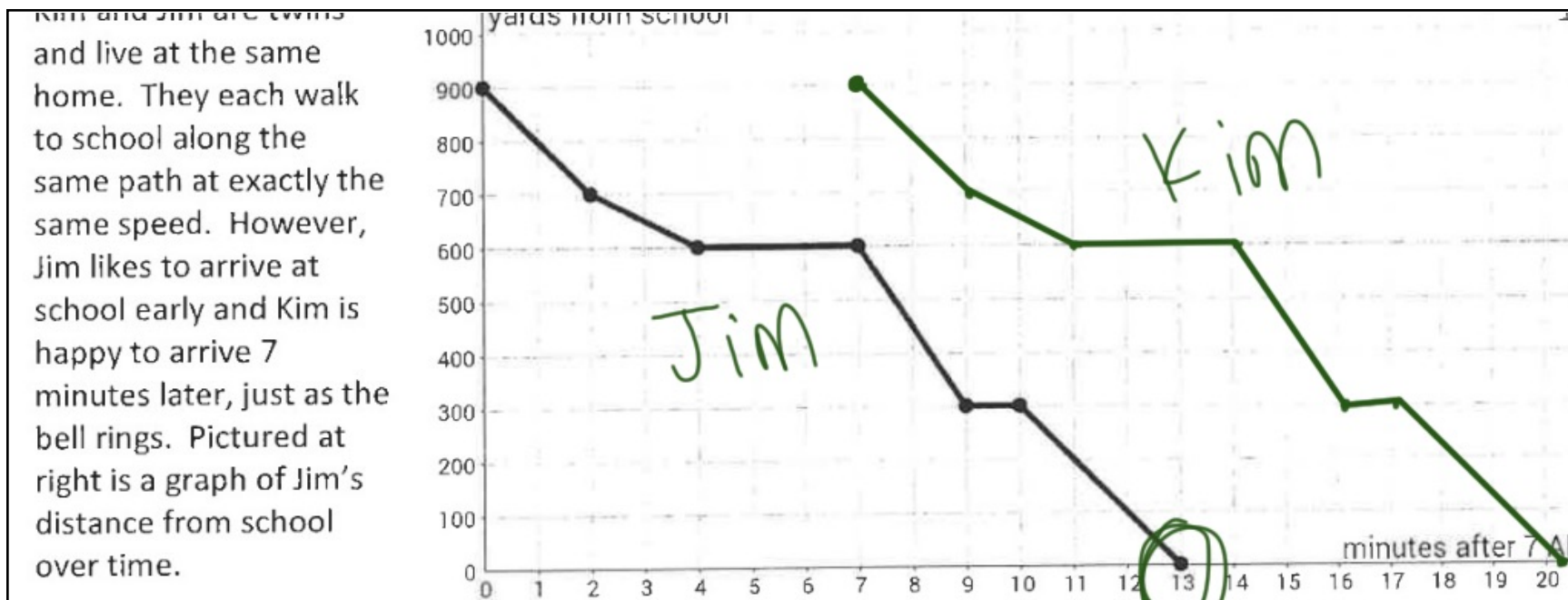
Unit 1

Lesson 8

Interpreting Functions / Domain + Range

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1. Use a dotted line to sketch Kim's graph of distance from school over time (once she leaves for school).
2. How many minutes after 7AM does Jim leave for school? 0
3. How many minutes after 7AM does Jim arrive at school? 13
4. How many minutes after 7AM does Kim leave for school? 7
5. How many minutes after 7AM does Kim arrive at school? 20

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6. What is Jim's farthest distance from school? 900yd
7. What is Jim's closest distance to school? 0yd
8. What is Kim's farthest distance from school? 900yd
9. What is Kim's closest distance to school? 0yd

➤ Use your answers to the above questions to fill in the following:

10. Jim's domain:  $0 \leq x \leq 13$   
 (where  $x$  represents time after 7AM)

11. Kim's domain:  $7 \leq x \leq 20$   
 (where  $x$  represents time after 7AM)

12. Jim's range:  $0 \leq y \leq 900$   
 (where  $y$  represents distance from school)

13. Kim's range:  $0 \leq y \leq 900$   
 (where  $y$  represents distance from school)

➤ Inequalities can also be written in interval notation. Parentheses and/or brackets are used to show whether the endpoints are excluded or included. For example,  $[3, 8)$  is the interval of real numbers between 3 and 8, including 3 and excluding 8. Another example,  $[4, \infty)$  is the interval of real numbers greater than or equal to 4.

$[0, 13]$

$[0, 900]$

$[7, 20]$

$[0, 900]$



➤ Quick review: The **domain** is the set of all possible  $x$  – values on the graph. The **range** is the set of all possible  $y$  – values on the graph.

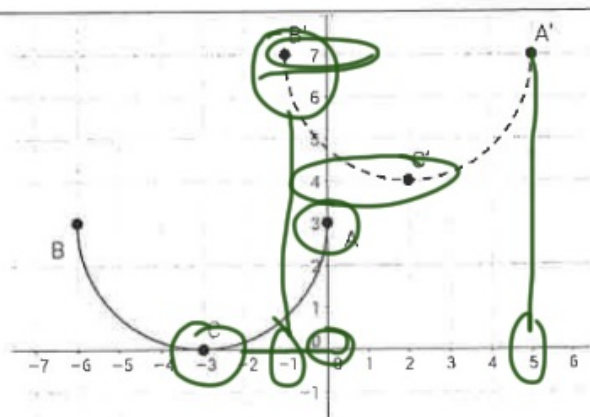
1. Describe the translation(s) from the pre-image to the image.

a. Given the following graph, state the domain and range of the pre-image in ~~inequality~~ <sup>interval</sup> notation:

Domain:  $[-6, 0]$  Range:  $[0, 3]$

b. State the domain and range of the image in interval notation:

Domain:  $[-1, 5]$  Range:  $[4, 7]$



2. Draw and label the image of  $\overline{AB}$  translated left 2 and down 3.

a. State the domain and range of the pre-image:

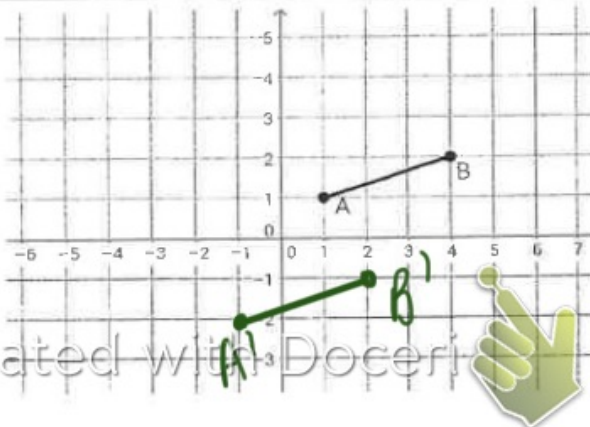
Domain:  $[1, 4]$  Range:  $[1, 2]$

~~Domain: \_\_\_\_\_ Range: \_\_\_\_\_~~

b. State the domain and range of the image:

Domain:  $[-1, 2]$  Range:  $[-2, -1]$

~~Domain: \_\_\_\_\_ Range: \_\_\_\_\_~~



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inclusive  $[ \cdot ]$

exclusive  $( \cdot , )$

~~1~~, 1, 2, 2.9, 2.99  
0.000004  $\bigcirc$

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3. Draw and label the image of  $\overline{AB}$  reflected over the x-axis.

a. State the domain and range of the pre-image:

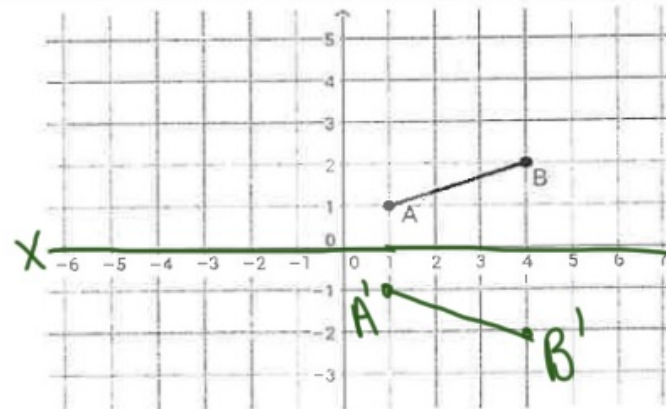
Domain:  $[1, 4]$  Range:  $[1, 2]$

Domain: \_\_\_\_\_ Range: \_\_\_\_\_

b. State the domain and range of the image:

Domain:  $[1, 4]$  Range:  $[-2, -1]$

Domain: \_\_\_\_\_ Range: \_\_\_\_\_



4. Draw and label the image of  $\overline{AB}$  reflected over the y-axis.

a. State the domain and range of the pre-image:

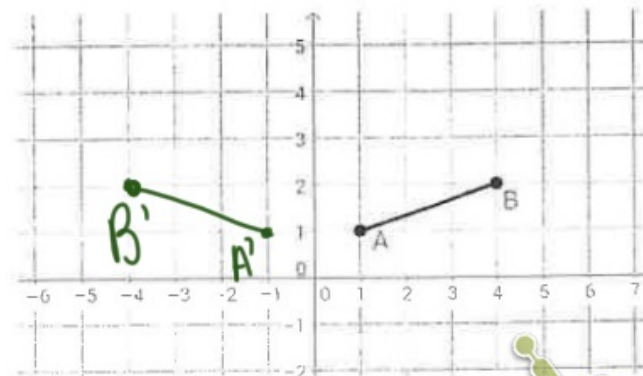
Domain:  $[1, 4]$  Range:  $[1, 2]$

Domain: \_\_\_\_\_ Range: \_\_\_\_\_

b. State the domain and range of the image:

Domain:  $[-4, -1]$  Range:  $[1, 2]$

Domain: \_\_\_\_\_ Range: \_\_\_\_\_



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5. Draw and label the image of  $\overline{AB}$  reflected over the line  $y = x$ .

a. State the domain and range of the pre-image:

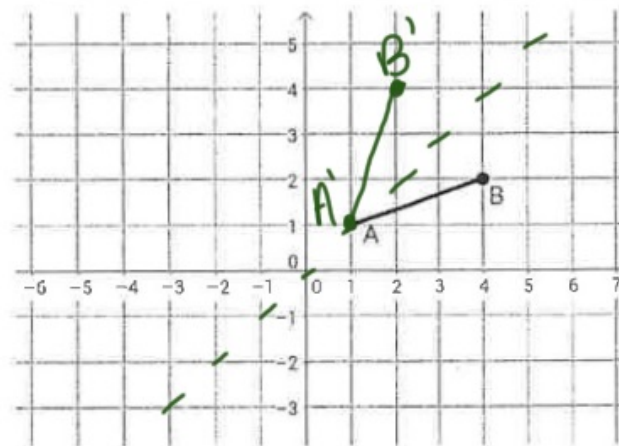
Domain: [1, 4] Range: [1, 2]

Domain: \_\_\_\_\_ Range: \_\_\_\_\_

b. State the domain and range of the image:

Domain: [1, 2] Range: [1, 4]

Domain: \_\_\_\_\_ Range: \_\_\_\_\_



6. Draw and label the image of  $\overline{AB}$  rotated  $90^\circ$ .

a. State the domain and range of the pre-image:

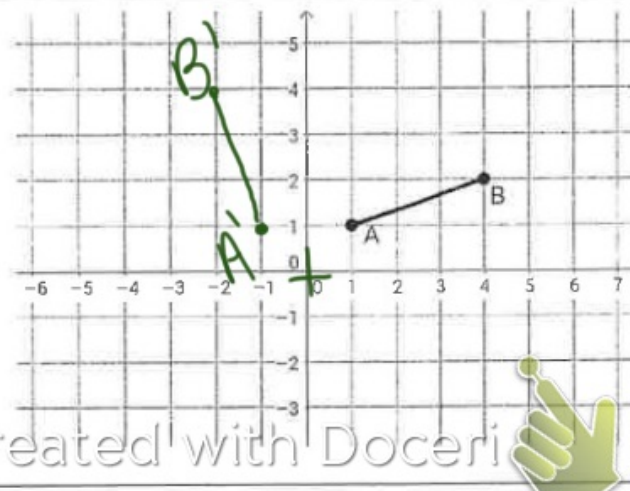
Domain: [1, 4] Range: [1, 2]

Domain: \_\_\_\_\_ Range: \_\_\_\_\_

b. State the domain and range of the image:

Domain: [-2, -1] Range: [1, 4]

Domain: \_\_\_\_\_ Range: \_\_\_\_\_



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7. Draw and label the image of AB dilated by a scale factor of 3.

a. State the domain and range of the pre-image:

Domain:  $[1, 4]$  Range:  $[1, 2]$

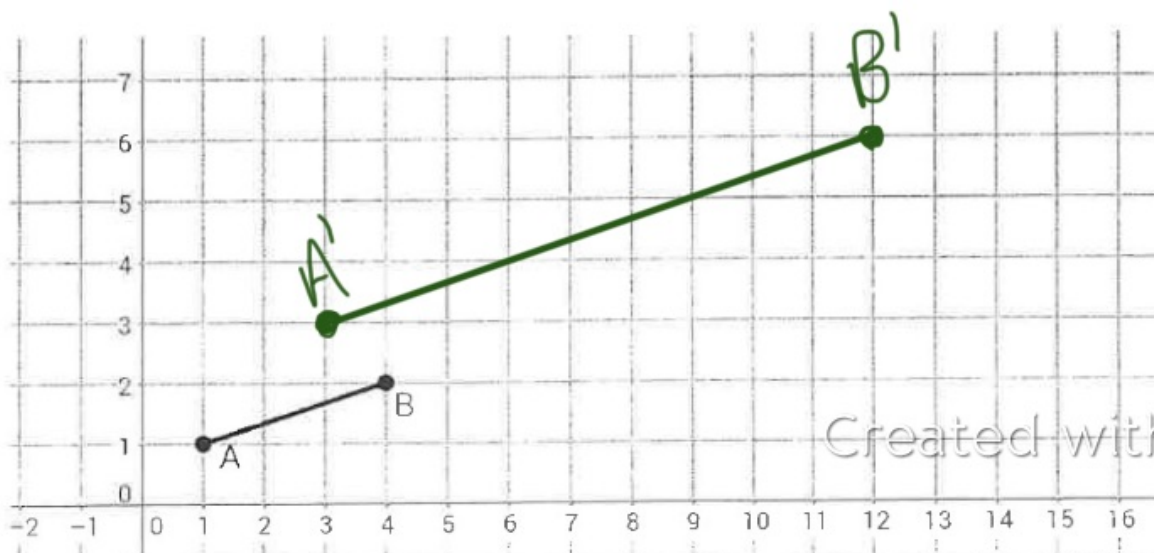
Domain: \_\_\_\_\_ Range: \_\_\_\_\_

b. State the domain and range of the image:

Domain:  $[3, 12]$  Range:  $[3, 6]$

Domain: \_\_\_\_\_ Range: \_\_\_\_\_

$A(1, 1)$   
 $A'(3, 3)$   
 $B(4, 2)$   
 $B'(12, 6)$



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Study Guide: 38-40

No Rules

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