

A. Lesson Context

BIG PICTURE of this UNIT:	<ul style="list-style-type: none"> • What is meant by the term FUNCTIONS and how do we work with them? • mastery with working with basics & applications of linear functions • mastery with working with basics & applications of linear systems • understanding basics of function concepts and apply them to lines & linear systems 		
CONTEXT of this LESSON:	<p>Where we've been</p> <p>In Lesson 2, you practiced with function notations and function representations</p>	<p>Where we are</p> <p>Working further with skills & concepts to help consolidate your understanding of domain and range</p>	<p>Where we are heading</p> <p>How do we apply the concept of "functions" to linear & exponential relations.</p>

B. Lesson Objectives

- Practice with skills important in mathematically describing domain and range → set notation, number lines, number sets
- Review three main number sets → natural numbers, integral numbers and real numbers
- Find the domain and range of functions presented as graphs.

C. Fast Five (Skills Review Focus)

1. $13y + 19 < 6(9 + y) + 14$

4. $3y + 10.5 > 6.5 + 2.5y$

2. $8a - 2(a + 5) \geq 2(a - 1)$

5. $3a - \frac{11}{2} < -\frac{3a}{2} + \frac{25}{2}$

3. $8(z + 4) \geq 5(13 + z)$

6. $-4x - 18 \leq -7x + 30$


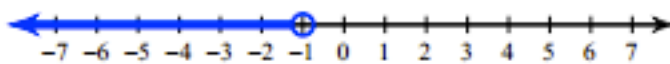

D. Number Sets (Skill Builder Focus)

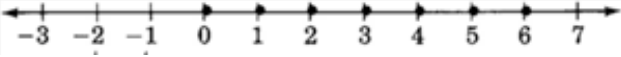
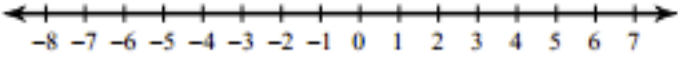
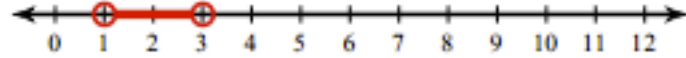
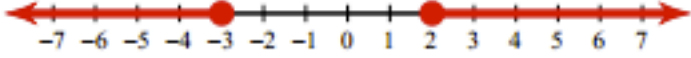
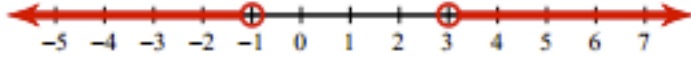
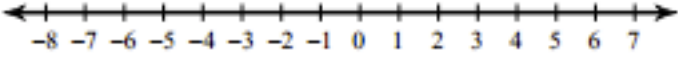
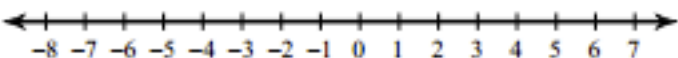
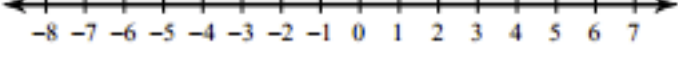
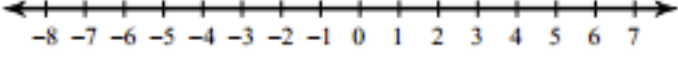
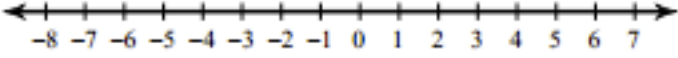
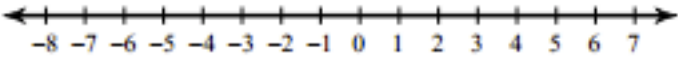
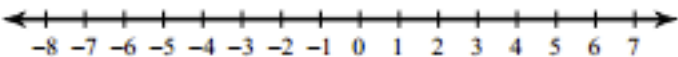
- a. Set of **Natural** Numbers → our set of “counting” numbers → $N = \{1, 2, 3, 4, 5, \dots\}$
- b. Set of **Whole** Numbers → our counting numbers as well as zero → $W = \{0, 1, 2, 3, 4, 5, \dots\}$
- c. Set of **Integers** → if we now include negative, natural numbers in our number set →
 $Z = \{\dots -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, \dots\}$
- d. Set of **Rational** Numbers → we now expand our number set to include any number that can be written as a FRACTION (the quotient of two integers) → $Q = \left\{ \frac{a}{b} \mid a, b \in Z \text{ and } b \neq 0 \right\}$
- e. Set of **Irrational** Numbers → we now expand our number set to include any number that CANNOT be written as a fraction (i.e one integer over another integer) and includes numbers like radicals and pi
- f. Set of **Real** Numbers → our complete set of all numbers (natural, whole, integers, rationals & irrationals), so basically any number on our number line and we use the symbol **R**

E. Practice with Number Sets

Link to [this following worksheet from KUTASOFTWARE](#) on placing numbers within number sets (use mini white boards)

F. Working with Inequalities, Number Lines & Set Notation (Skill Builder Focus)

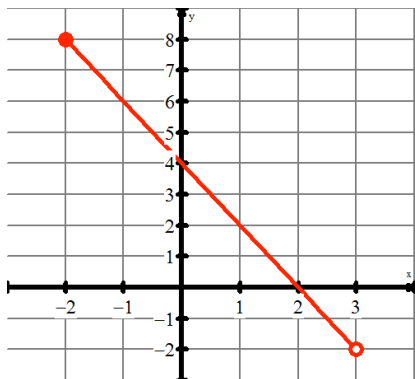
VISUAL: Number Line	Verbal Description	Set Notation
		
		
		

		
		
		
		
		
	All real numbers between and including -2 and 6	
	All real numbers that are less than 5	
	All integers between, but excluding, -6 and 4	
		$\{x \in \mathbb{R} \mid -4 < x \leq 2\}$
		$\{x \in \mathbb{Z} \mid -4 < x \leq 2\}$
		$\{x \in \mathbb{R} \mid x \leq -3 \text{ or } x > 4\}$
		$\{x \in \mathbb{R} \mid x > -2\}$

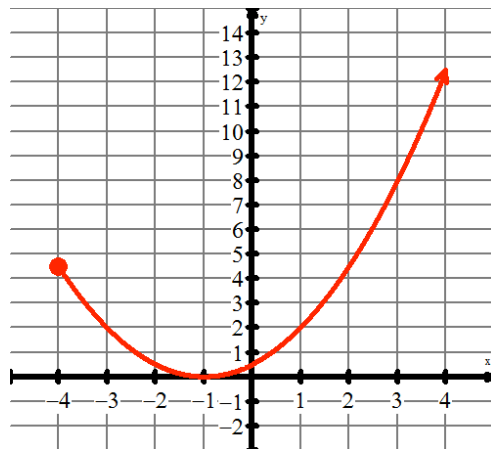
G. Connection to Domain and Range

State the domain and range of the following graphs. Use **MUST** use set notation (for practice!!) and may use interval notation.

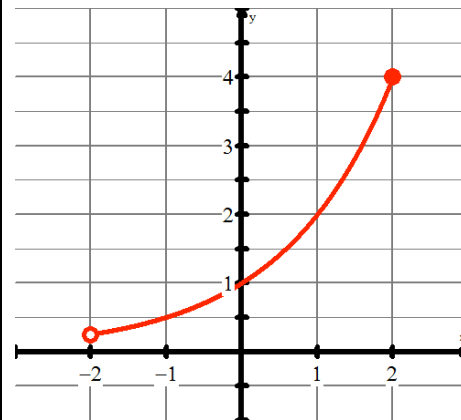
1.



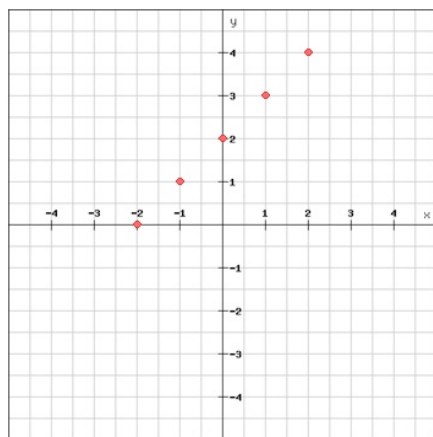
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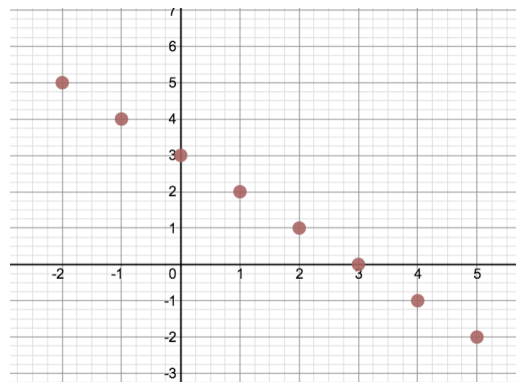
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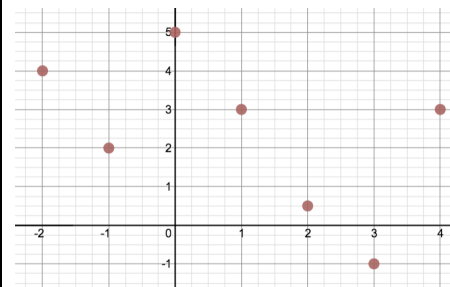
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5.



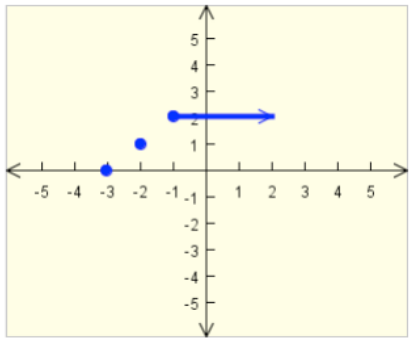
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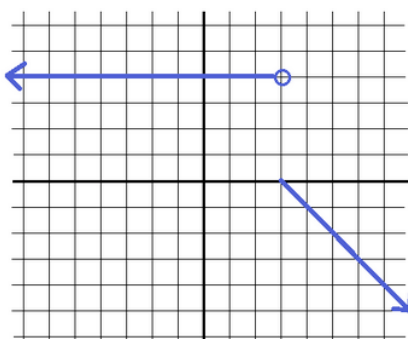
H. Connection to Domain and Range – More Examples

State the domain and range of the following graphs. Use **MUST** use set notation and may use interval notation.

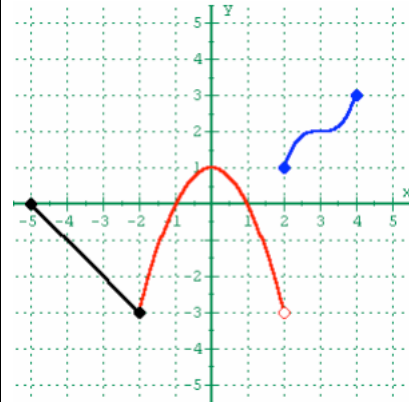
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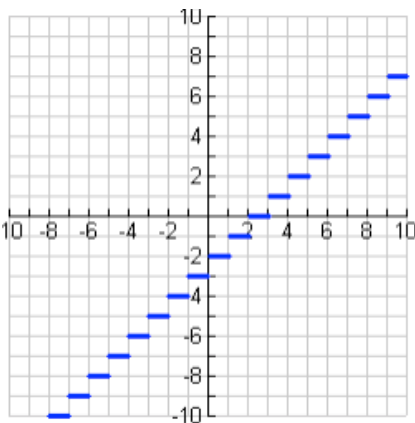
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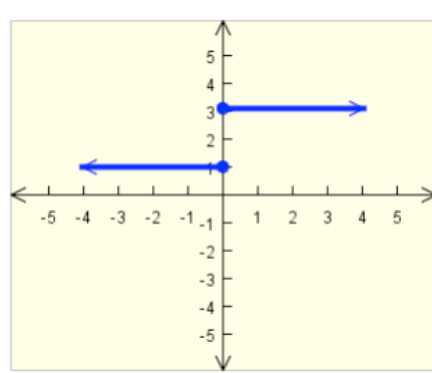
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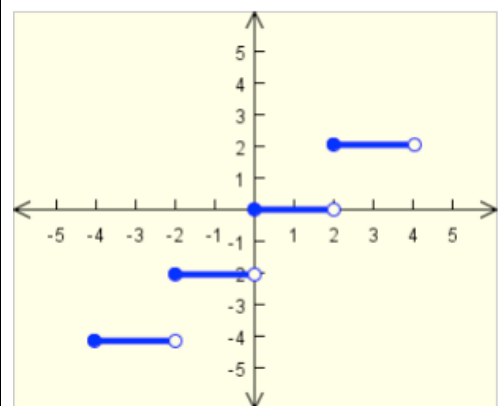
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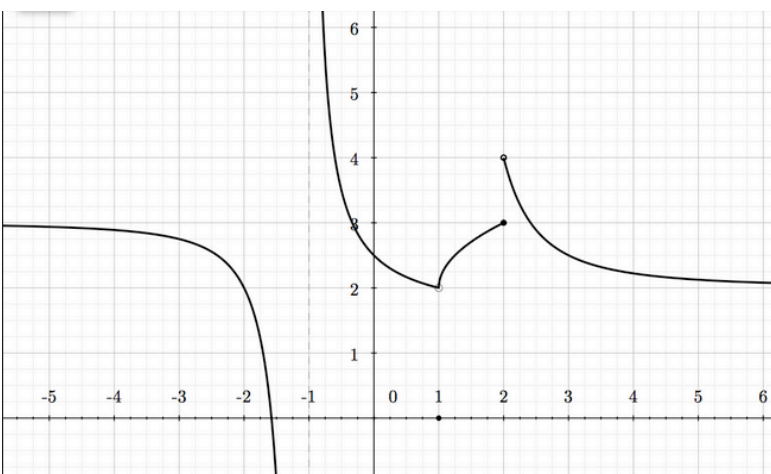
11.



12.



13.



14.

