

**Just In Time Quick Check**  
**Standard of Learning (SOL) A.7b**

**Strand: Functions**

**Standard of Learning (SOL) A.7b**

*The student will investigate and analyze linear and quadratic function families and their characteristics both algebraically and graphically, including domain and range.*

**Grade Level Skills:**

- Identify the domain, range, zeros, and intercepts of a function presented algebraically or graphically.
- Investigate and analyze characteristics and multiple representations of functions with a graphing utility.

**Just in Time Quick Check**

**Just in Time Quick Check Teacher Notes**

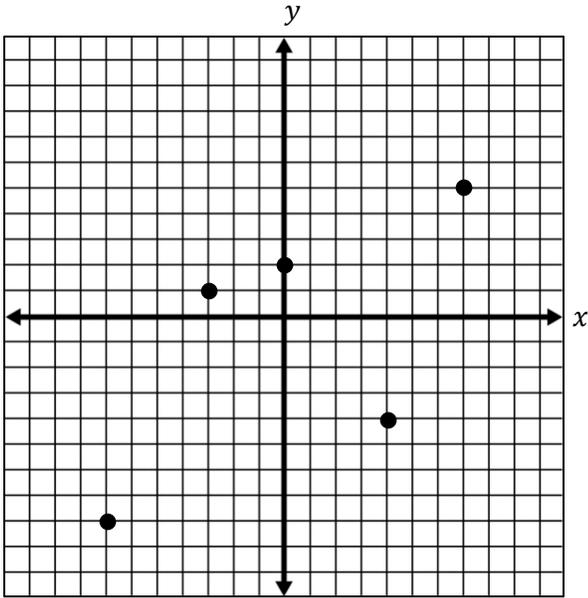
**Supporting Resources:**

- VDOE Mathematics Instructional Plans (MIPS)
  - [A.7abef - Functions 1: Investigating Relations and Functions](#) (Word) / [PDF Version](#)
  - [A.7bcd - Functions 2: Exploring Quadratic Functions](#) (Word) / [PDF Version](#)
- VDOE Algebra Readiness Formative Assessments
  - [A.7a,b,e](#) (Word) / [PDF](#)
- VDOE Word Wall Cards: Algebra I ([Word](#)) | ([PDF](#))
  - Domain
  - Range
- VDOE Rich Mathematical Tasks: The Soccer Competition
  - [A.7 The Soccer Competition Task Template](#) (Word) / [PDF Version](#)
- Desmos Activities
  - [Transforming Lines](#)
  - [Two Truths and a Lie: Quadratics](#)
  - [What's my Transformation?](#)
  - [Free-Range Functions](#)
  - [Function Representation Card Sort](#)
  - [Polygraph: Parabolas](#)
  - [Polygraph: Parabolas Part 2](#)
  - [Polygraph: Quadratics](#)
  - [Will It Hit the Hoop?](#)

**Supporting and Prerequisite SOL:** [8.15b](#)

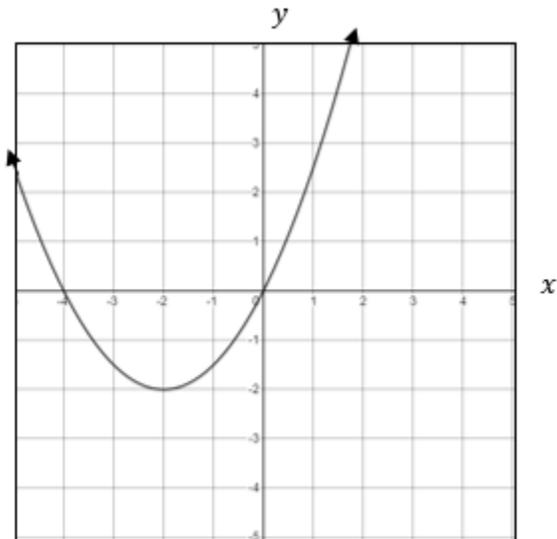
### SOL A.7b - Just in Time Quick Check

1) What appears to be the domain of the relation shown?



- A.  $\{y \mid -8 \leq y \leq 5\}$
- B.  $\{x \mid -7 \leq x \leq 7\}$
- C.  $\{y \mid y = -8, -4, 1, 2, 5\}$
- D.  $\{x \mid x = -7, -3, 0, 4, 7\}$

2) What is the domain of the function shown?



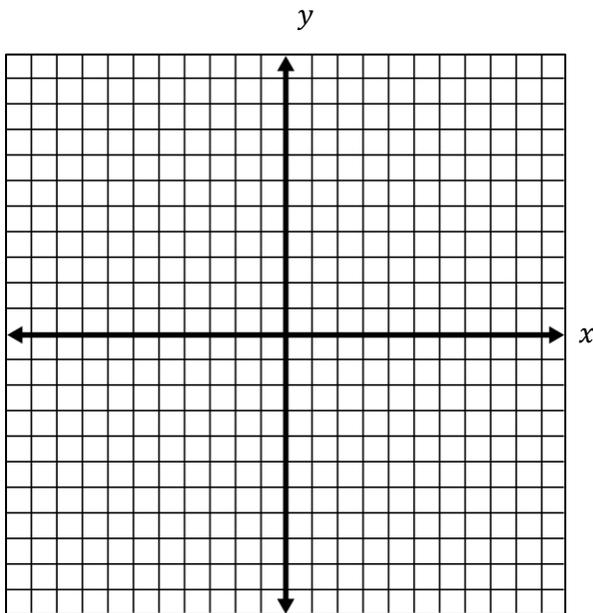
3) Write the range of the function  $f(x) = -(x + 4)^2 - 3$  using set notation below.

The range of  $f(x)$  is  $\{y|y\text{_____}\}$ .

4) Draw a line segment that represents a relation with:

**Domain:** the set of all real numbers greater than or equal to -3 and less than or equal to 2

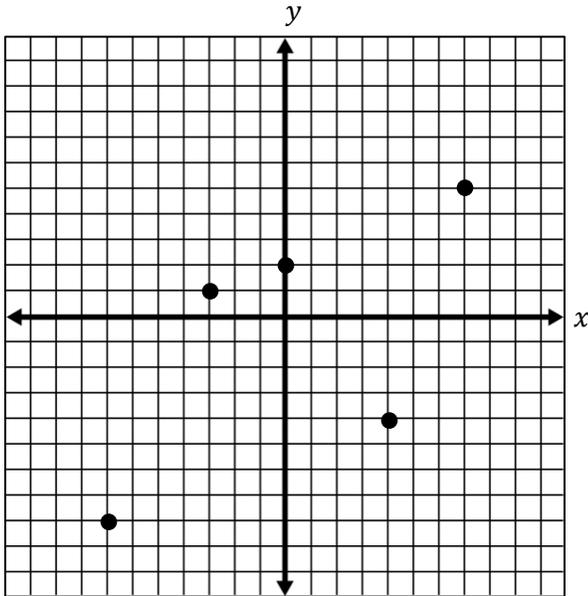
**Range:** the set of all real numbers greater than or equal to -4 and less than or equal to 1



## SOL A.7b - Just in Time Quick Check Teacher Notes

### Common Errors/Misconceptions and their Possible Indications

- 1) What appears to be the domain of the relation shown?



- A.  $\{y \mid -8 \leq y \leq 5\}$
- B.  $\{x \mid -7 \leq x \leq 7\}$
- C.  $\{y \mid y = -8, -4, 1, 2, 5\}$
- D.  $\{x \mid x = -7, -3, 0, 4, 7\}$

*A common error a student may make is to list the domain as  $-7 \leq x \leq 7$  instead of as discrete values. This indicates the student does not recognize the difference between a list of discrete values and a range of values. A strategy that could be used is to review inequalities on a number line to indicate how they cover a range of values. Desmos could be used as a visual representation of how the range of values covers more than just the discrete list would.*

- 2) What is the domain of the function shown?

*A common error would be for a student to list the domain as -4 and 0 or between -4 and 0. This indicates a misunderstanding of domain for x-intercepts. The teacher should review with the student that while x-intercepts are part of the domain, the domain is the set of all possible values of the independent variable. Listing additional ordered pairs from the graph in a set or table may help visualize this.*

