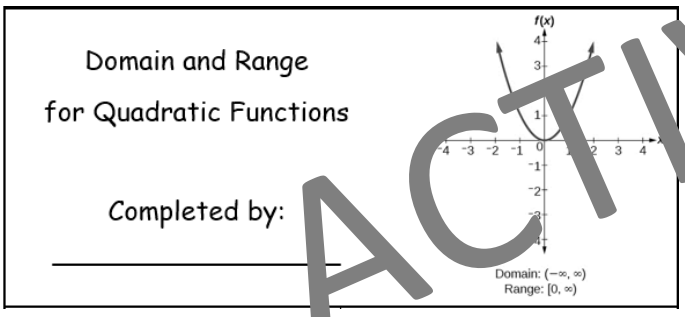
Algebra I Readiness Focus

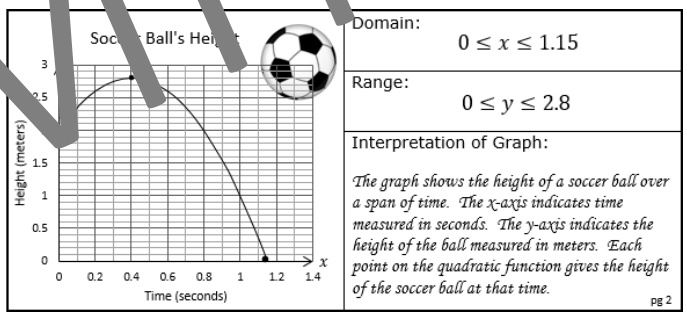
A.6(A) *determine* the domain and range of quadratic functions and represent the domain and range using inequalities.

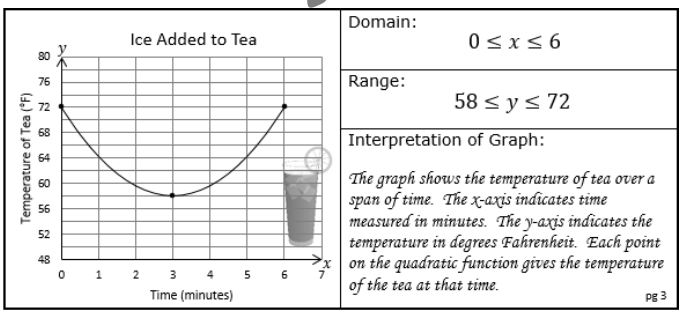
Activity Directions:

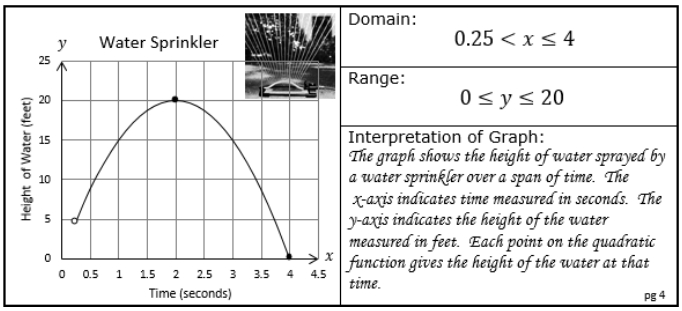
Items Needed: *Domain and Range for Quadratic Functions* book, scissors

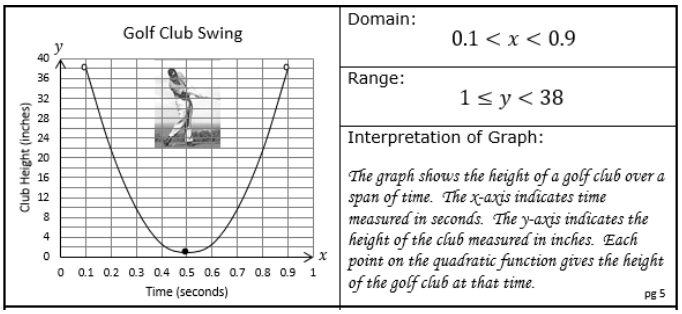
1. Copy the book for each student. Students will cut apart the pages and staple into a book when finished.
2. Students will complete the pages of the book to identify the domain and range in relation to a quadratic function. They will interpret graphs and write descriptions in the spaces provided. Example explanations are shown below.
3. The book can be placed in a math journal and reviewed before testing.
4. Have students practice questions coded to TEKS A.6A.

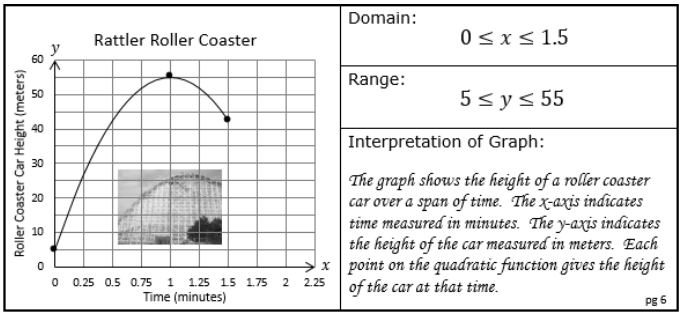










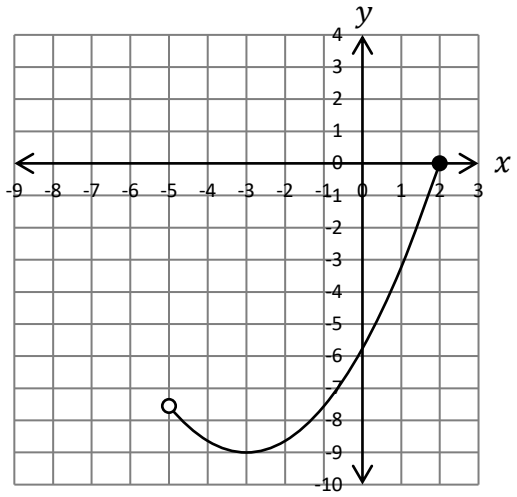


Name _____ Date _____

TEKS A.6(A) *Determine* the domain and range of quadratic functions and represent the domain and range using inequalities.

1. Which graph best represents a quadratic function with a range of all real numbers greater than or equal to -9?

Ⓐ



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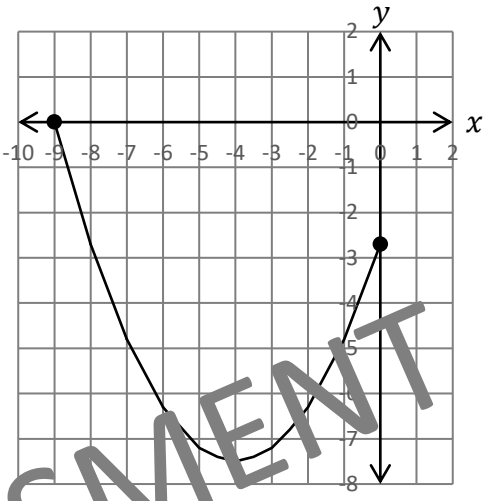

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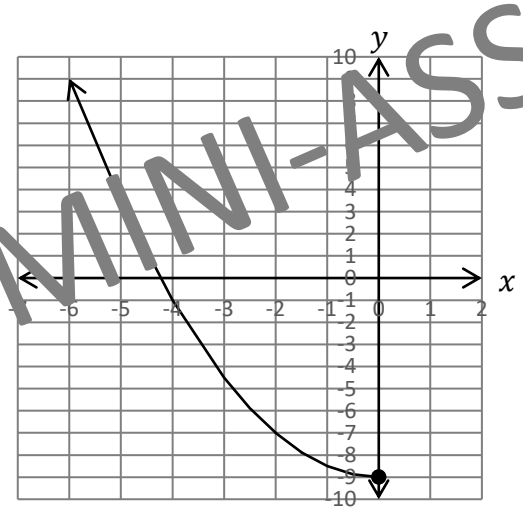

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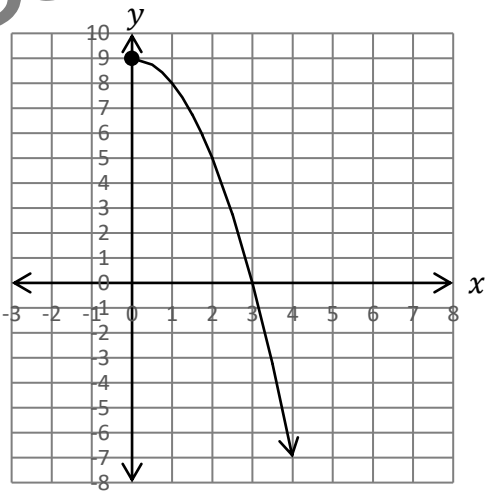


2. What is the range of the quadratic function $f(x) = 2(x-7)^2 + 3$?

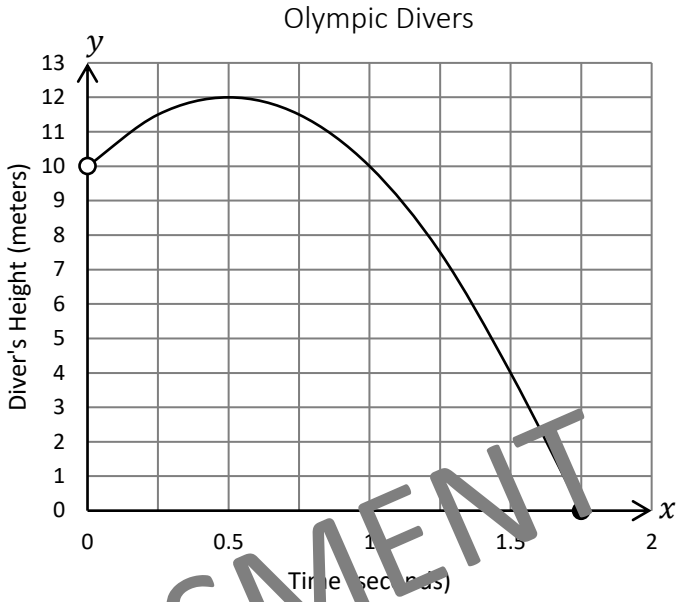
Ⓐ All real numbers.

Ⓑ All real numbers greater than or equal to 3.

Ⓒ All real numbers greater than or equal to 7.

Ⓓ All real numbers greater than or equal to 0.

3. Olympic divers propel from a platform that is 10 meters high. The graph shows the path of the diver from the platform.



What is the range of the graphed function?

Ⓐ $10 < y \leq 12$

Ⓑ $10 < y \leq 1.75$

Ⓒ $0 < y \leq 1.75$

Ⓓ $0 \leq y \leq 12$

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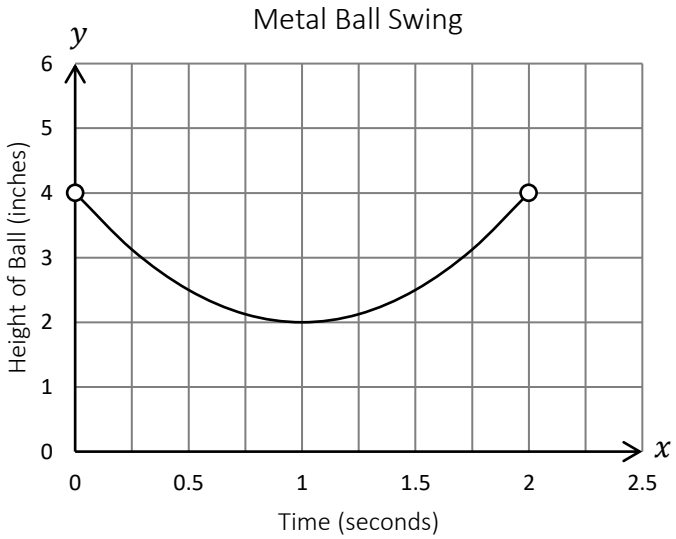
4. When set in motion, metal balls swing along a path that is quadratic in nature. The graph displays the path of the swing.



What is the domain of the graphed function?

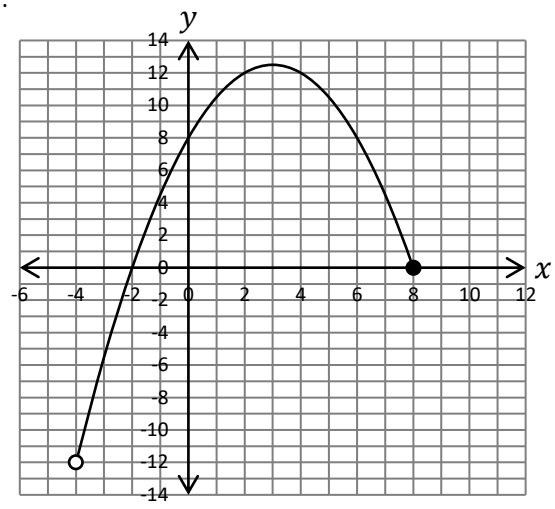
Ⓐ $2 \leq x < 4$

Ⓑ $1 \leq x < 2$

Ⓒ $0 < x < 2$

Ⓓ $4 < x \leq 1$

5. A function is graphed below.



Based on the graph, which of the following is true?

Ⓐ The domain of the function is $-4 \leq x \leq 8$.

Ⓑ The range of the function is $-12 < y \leq 12.5$.

Ⓒ The domain of the function is $0 \leq x \leq 8$.

Ⓓ The range of the function is $-12 < y \leq 8$.

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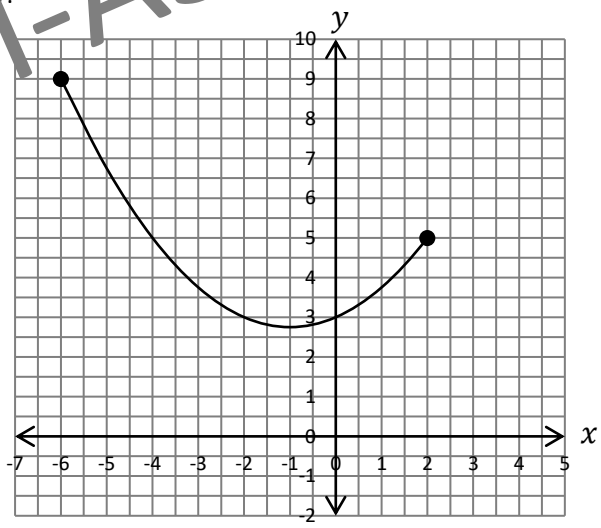
6. A function is graphed below.



Based on the graph, which of the following is true?

Ⓐ The domain of the function is $-6 \leq x \leq 2$.

Ⓑ The range of the function is $3 \leq y \leq 9$.

Ⓒ The domain of the function is $3 \leq x \leq 5$.

Ⓓ The range of the function is $0 \leq y \leq 2$.

7. A football follows a quadratic path when a field goal is attempted. The table represents some points on the graph that models the ball's distance from the ground in feet with respect to the time in seconds after the ball has been kicked.

Field Goal

Time (seconds)	0	1	2	3	4	5	6	7	8
Distance from Ground (feet)	0	17.5	30	37.5	40	37.5	30	17.5	0

What is the range of the situation?

Ⓐ All real numbers less than 40.

Ⓑ All real numbers less than or equal to 8.

Ⓒ All real numbers greater than or equal 0 and less than or equal to 40.

Ⓓ All real numbers greater than or equal to 0 and less than 8.

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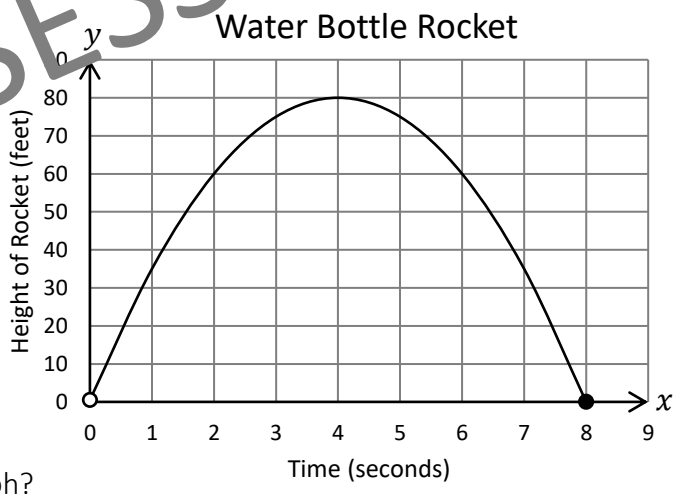
8. A rocket team is using trajectory software to study the path of a bottle rocket launched without a parachute. The graph displays the path of the rocket.



Which of the following best represents the graph?
Select TWO correct answers.

☐ The domain is the set of all real numbers.

☐ The domain is the set of all real numbers less than 80.

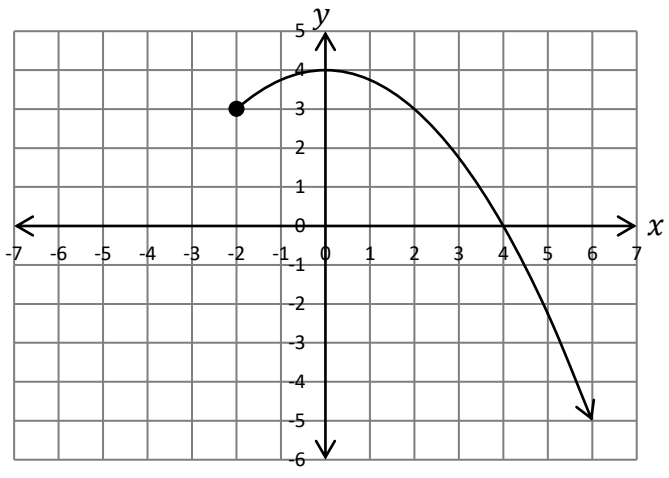
☐ The domain is the set of all real numbers greater than 0 and at most 8.

☐ The range is the set of all real numbers.

☐ The range is the set of all real numbers greater than 0 and at most 80.

☐ The range is the set of all real numbers greater than 0 and at most 8.

9. What is the domain of the function graphed below?



Ⓐ All real numbers.

Ⓑ All real numbers less than or equal to 4.

Ⓒ All real numbers less than or equal to 3.

Ⓓ All real numbers greater than or equal to -2.

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10. A section of a quadratic function is shown.

What are the domain and range of the function?

Move the correct answer to each box.
Not all answers will be used.

$x \geq 3$	$0 \leq y \leq 16$
$-1 \leq x < 5$	$y \leq 16$
$3 \leq x \leq 9$	$5 < y \leq 16$

Domain: ____

Range: ____