

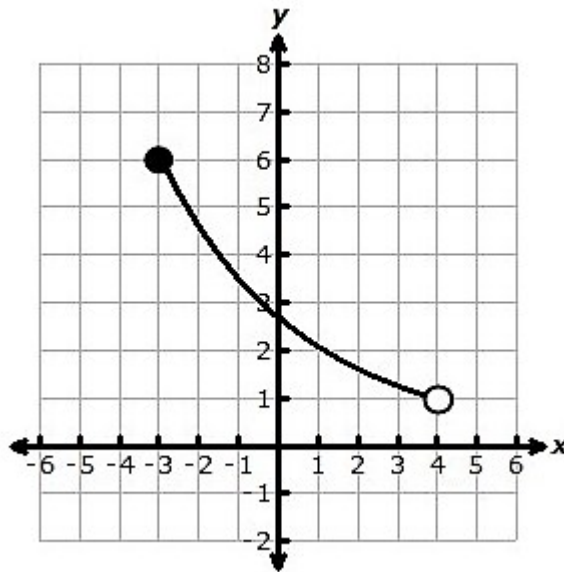
## A.9A Domain and Range of an Exponential Function

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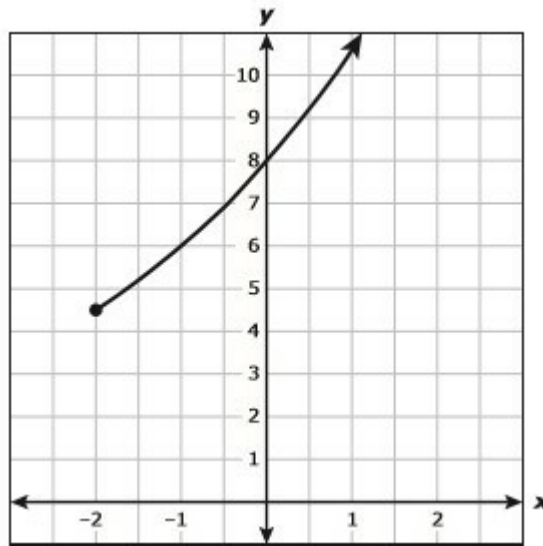
- 1 A partial graph of an exponential function is shown in the graph below.



What are the domain and range of this graph?

- A** Domain:  $-3 \leq x < 4$   
Range:  $1 < y \leq 6$
- B** Domain:  $-3 < x \leq 4$   
Range:  $1 \leq y < 6$
- C** Domain:  $1 < x \leq 6$   
Range:  $-3 \leq y < 4$
- D** Domain:  $1 \leq x < 6$   
Range:  $-3 < y \leq 4$

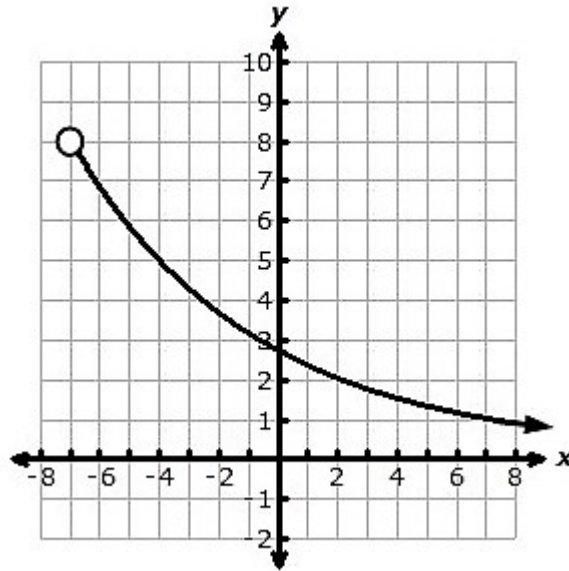
2 A part of an exponential function is graphed on the grid.



Which inequality best represents the domain of the part shown?

- A**  $x \geq -2$
- B**  $y \geq 4.5$
- C**  $x \geq 4.5$
- D**  $y \geq -2$

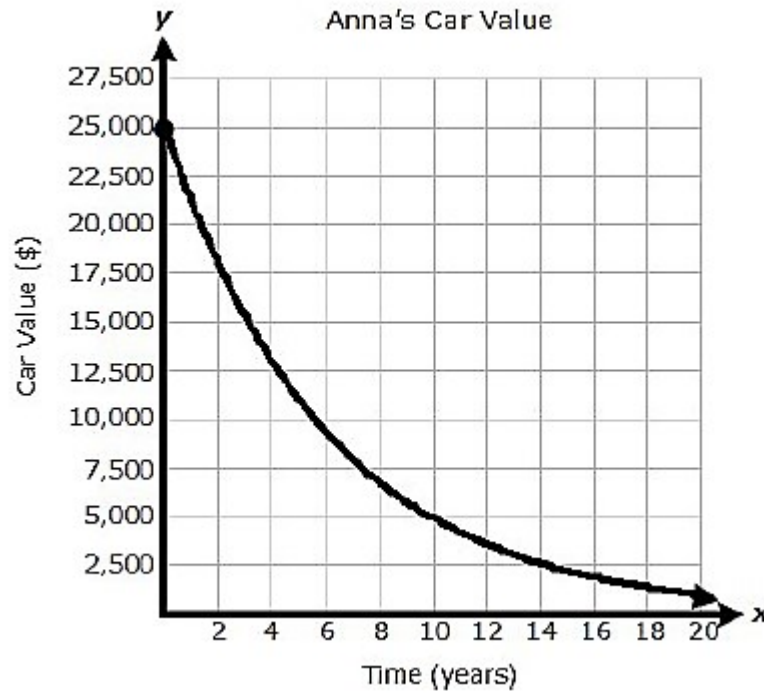
3 The graph of an exponential function is shown below.



What are the domain and range for the exponential function?

- A** Domain:  $0 < y < 8$   
Range:  $x > -7$
- B** Domain:  $x \geq -7$   
Range:  $0 < y \leq 8$
- C** Domain:  $x > -7$   
Range:  $0 < y < 8$
- D** Domain:  $0 < y \leq 8$   
Range:  $x \geq -7$

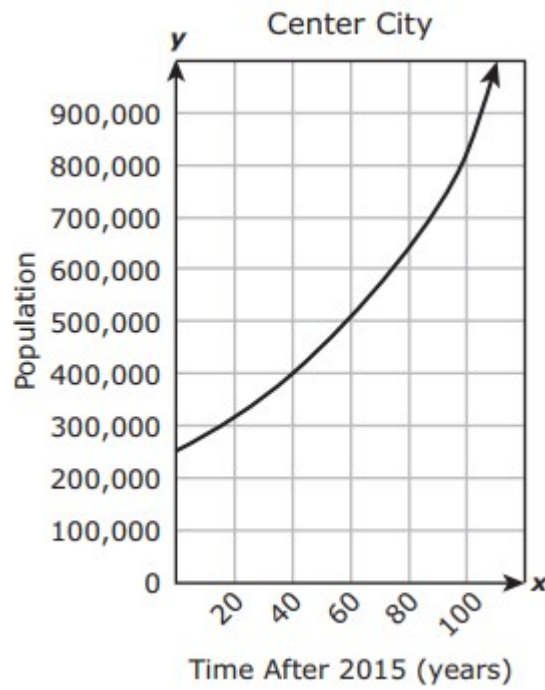
- 4 Anna purchased a new car for \$25,000. The car will decrease in value 15% each year. The value of Anna's car is modeled on the graph by function  $f$  where  $x$  is the time in years after Anna purchases her car.



Which inequality best represents the range of  $f$  in this situation?

- A The range is greater than \$0 and less than \$25,000.
- B The range is greater than or equal to \$0.
- C The range is greater than \$0 and less than or equal to \$25,000.
- D The range is less than or equal to \$25,000.

- 5 The population of Center City is modeled by exponential function  $f$ , where  $x$  is the number of years after the year 2015. The graph of  $f$  is shown on the grid.

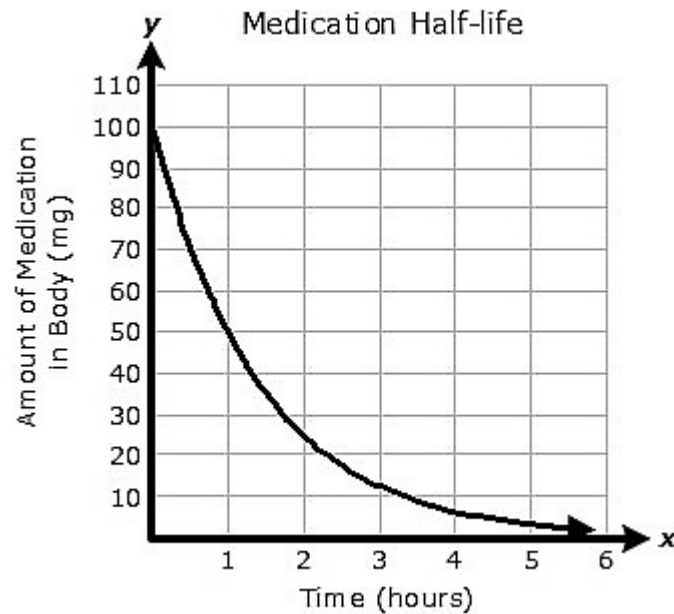


Which inequality best represents the range of  $f$  in this situation?

- A  $x \geq 0$
- B  $y \geq 250,000$
- C  $0 \leq x \leq 110$
- D  $250,000 \leq y \leq 1,000,000$

- 6 Safe dosages of medications are based in part on the medication's half-life, which is the amount of time it takes for half of the dose to be eliminated from the bloodstream.

The graph shows the amount of medication remaining in the body,  $f(t)$ , over a period of time,  $t$ , for a medication with a half-life of one hour and an initial dose of 100 mg.

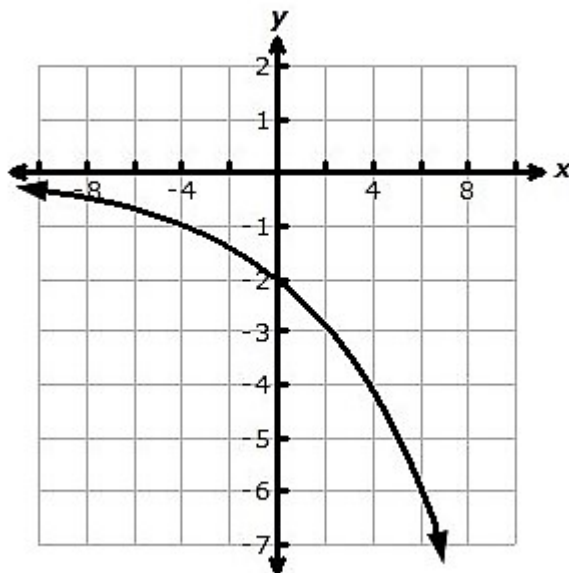


What are the domain and range of the function?

- A** The domain is all real numbers greater than 0 and less than or equal to 100.  
The range is all real numbers greater than or equal to 0.
- B** The domain is all real numbers greater than or equal to 0.  
The range is all real numbers less than or equal to 100.
- C** The domain is all real numbers less than or equal to 100.  
The range is all real numbers greater than or equal to 0.
- D** The domain is all real numbers greater than or equal to 0.  
The range is all real numbers greater than 0 and less than or equal to 100.



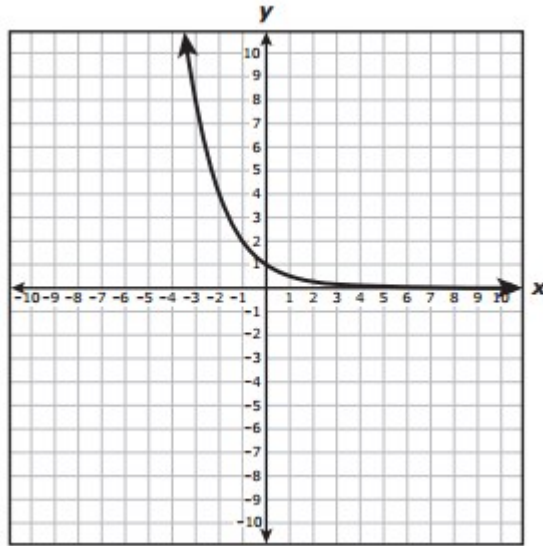
7 The graph of an exponential function is shown on the grid below.



Based on the graph, which statement about the exponential function is true?

- A** The domain is the set of all real numbers greater than 8.
- B** The range is the set of all real numbers less than 0.
- C** The domain is the set of all real numbers less than 8.
- D** The range is the set of all real numbers greater than 0.

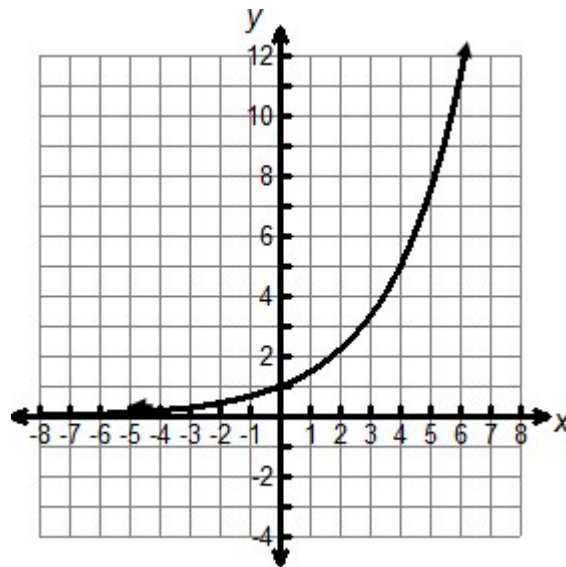
- 8 The graph of an exponential function is shown on the grid.



Based on the graph, which statement about the function is true?

- A The range is the set of all real numbers less than 0.
- B The domain is the set of all real numbers greater than -4.
- C The range is the set of all real numbers greater than 0.
- D The domain is the set of all real numbers less than -4.

9 An exponential function is shown below.

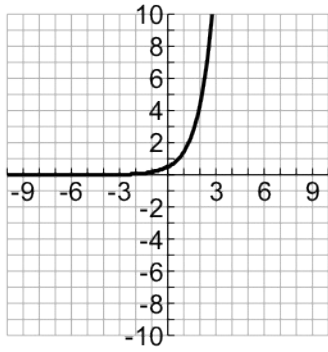


What are the domain and range for the representative exponential function?

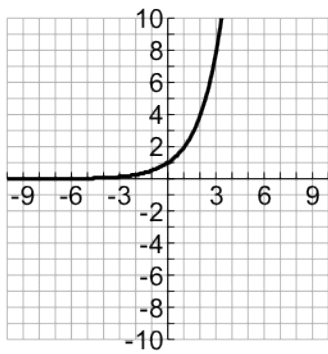
- A** Domain:  $y > 0$   
Range:  $x \in \mathcal{R}$
- B** Domain:  $x \in \mathcal{R}$   
Range:  $y \geq 0$
- C** Domain:  $y \geq 0$   
Range:  $x \in \mathcal{R}$
- D** Domain:  $x \in \mathcal{R}$   
Range:  $y > 0$

**10** Which of the graphs below shows a domain of  $-\infty < x < \infty$  and a range of  $-\infty < y < 0$ ?

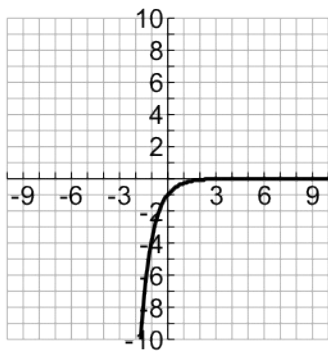
**A**



**B**



**C**



**D**

